

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 46, No. 3

MARCH 1978

CONTENTS

TECHNICAL

Additional Operating Notes for G3LLP RF Clipper	11
Anodizing Aluminium	6
Frequency Programming for the ICOM IC225	14
Modifications to the Yaesu FT100B	10
Technical Correspondence	19
Try This	11

GENERAL

AR Awards	5
Red Cross Murray River Canoe Marathon — WICEN Exercise	18
Show Time in the West	16

The Ron Wilkinson Achievement Award	17
VK/ZL Contest Results for 1977	32
With the Bower Bird "Freaks"	12

DEPARTMENTS

Amateur Satellites	20
ATV News	19
C.A.R.E.	24
Contests	33
Divisional Notes	21
Hamads	34
IARU News	24
Intruder Watch	32
Ionospheric Predictions	32

Letters to the Editor	25
QSP	3, 21, 28
Silent Keys	34
VHF-UHF — an expanding world	27
WIANEWS	5

COVER PHOTO

Gil Miles VK2KI, first licensed in 1922 and still going strong, displays his home brew valve type slow scan TV monitor, underneath is a solid state slow scan signal generator.

Photo courtesy Electronics Australia.

HAM

RADIO SUPPLIERS

323 ELIZABETH STREET, MELBOURNE, VIC., 3000

Phones: 67-7329, 67-4286

Our Disposals Store at 104 HIGHETT ST., RICHMOND (Phone 42-8136) is open Mondays to Fridays, 9.00 a.m. to 5.00 p.m., and on Saturdays to midday.

FM LEAD ANTENNALESS MICROPHONE

MODEL FIRST-101 (Uni-directional Condenser Microphone)

A new professional quality uni-directional condenser microphone featuring superb sensitivity and excellent frequency characteristics. Very easy handling because of cordless microphone. Operates on just one UM-3 battery for 100 hours of continuous use. Very economical. The transmitting frequency freely adjustable within FM radio band. If using without lead antenna, sound is caught within about 50 metres, when using with reinforced antenna to jack at the bottom, range is extended up to about 100 metres. Accessories: Battery UM-3, Wind screen, Adjusting screwdriver, reinforced antenna line, microphone stand.

NETT PRICE \$33.90

Postage \$1.40

YAESU FRG-7

THE RADIO FOR WORLD-WIDE LISTENING AT ITS BEST — 0.5-29.9 MHz COVERAGE AUT SYNTHESIZED COMMUNICATION RECEIVER



The model FRG-7 is a precision built high performance communication receiver designed to cover the band from 0.5-29.9 MHz. Its state of the art technology offers an unprecedented level of versatility. The Wadley Loop System (drift cancellation circuit) coupled with a triple conversion super heterodyne system guarantees an extremely high sensitivity and excellent stability. It provides complete satisfaction to amateurs as well as BCLs with superb performance and many features such as RF attenuator, selectable tone, and automatic noise suppression circuit.

\$338

E.E.I. SOLID STATE CAR RADIO

MW BAND
PUSH-BUTTON TUNING
SPECIFICATIONS:
Power Supply: 12 V DC
Receiving Frequency: MW 520K (580M) — 1640K (163M)
Intermediate Frequency: 455KHz
Audio Output: 4.5W
Transistors: 8, diode 4
Speakers: 5" Permanent Dynamic 4 ohm
Sensitivity: Less than 20 uV at 20 MHz
Selectivity: More than 25 dB at +10 kHz
Tuning:
A.G.C.: More than 45 dB at 1,000 kHz
IF Rejection: More than 40 dB at 600 kHz
IM Rejection: More than 50 dB at 1,400 kHz
Cabinet Dimensions: 1-7/8" (H) x 6-1/2" (W) x 4-1/8" (D)

\$32.90 — Free Post

HANSON SWR6 POWER METER & FIELD STRENGTH INDICATOR

Handy for checking transmitter operation. Uses bridge method for SWR measurements. Simple and accurate operation. CM method employed for RF power measurement.

NETT PRICE \$22.00

Postage \$1.80

ARLEC PLUG-PAK PLUG-IN POWER SUPPLY

Plugs directly into 240 volt mains supply power sockets and provides 12 volt 1 amp smoothed DC for powering low voltage and battery operated equipment — Transceivers, cassette recorders, cartridge players, burglar alarms, electric models and toys, car radios, etc. 12 Volt 1 amp SEC approved, double insulated, overload protected.

NETT PRICE \$16.90

Postage \$1.80

MODEL OL84 D/P MULTIMETER

Very ruggedly constructed this model is particularly suitable for workshops. It features special scales for measurement of capacitance and inductance. Diode protected movement. Specifications: 20,000 ohm/volt DC, 8,000 ohm/volt AC, DC volts — 0.25; 1; 2.5V; 10; 50; 250; 1,000; 5,000, AC volts — 10; 50; 250; 1,000, DC amps: 50 uA; 1 mA; 50 mA; 500 mA; 10 A. Ohms — 4 K ohm; 400 K ohm; 4 M ohm; 40 M ohm. Centre scale — 40 ohm; 4,000 ohm; 40,000 ohm; 400,000 ohm. Decibel: —20 to -162 dB, Dimensions: 6" x 4-1/8" x 2"; 152 x 107 x 51 mm. Inductance — 0/5000H. Carrying case available, Model C \$5.90.

\$32.50 Postage \$2.20



E.E.I. PORTABLE RADIO

AM/AIR VHF
SPECIFICATIONS:
Freq. Range: AM530-1600 kHz, AIR (VHF) 108-174 MHz, Interned. Freq.: AM 465 kHz, FM 10.7 MHz, Output: 450 mW max. Speaker: 2 1/2" permanent-magnetic dynamic type, 8 ohm.
Power Source: DC — 6V (4 x UM3 Penlite) or equivalent. Semiconductor: 30 trans., 7 diode.
Dimensions: 8 1/2" (W) x 4 1/2" (H) x 1-7/8" (D)

\$18.90 — Postage \$1.40

MODEL AS100 D/P MULTIMETER

This meter features double zero diode meter protection and 3 1/2" full view easy to read 2 colour scale. It is fitted with polarity reversing switch and housed in a strong moulded case with carrying handle.
SPECIFICATION: 1000,000 ohm/volt DC, 10,000 ohm/volt AC, DC Volts: 0.3, 3, 12, 60, 120, 300, 600, 1,200, AC Volts: 6, 30, 120, 300, 600, 1,200, DC Amps: 12 uA, 6 mA, 30 mA, 300 mA, 12A. Ohms: 2K, 200K, 2M, 20M, 200M ohm. Centre Scale: 20 ohm, 2,000 ohm, 20,000 ohm, 200,000 ohm, 2M ohm. Decibel —20 to -45 dB. Dimensions: 7-3/8" x 5-2/5" x 2-3/8" Ins. Carrying case for model 1 — \$7.90.
Price: \$52.50 — Postage \$2.20.

BULK STORE DISPOSALS

AT 104 HIGHETT STREET
RICHMOND, 3121
Phone (03) 42-8136

NEW AWA-THORN TV TUNERS

Type ENR5758, fitted with 60K5 and 60S7 valves.

\$2 each plus P&P

NEW MAGNAVOX 53TS SPEAKERS

5" x 3" 8ohm, Ideal for small extension speaker for communications equipment.

\$1.95 each plus P&P

CAPACITORS

Variable Beahive Philips Type 25 pF, real value at

15c each or 10 for \$1

VARIABLE BUTTERFLY CONDENSERS

with screw driver adjustment, available in 9-17 and 25 pF. While they last at

\$2 each plus P&P

EDGE METERS

0-1 mA movement calibrated, 0-5 ounces. Brand new in boxes.

\$3 each plus P&P

LARGE VARIETY OF MULTI-CORE SHIELDED CABLE

All extremely high quality.

2 CORE SHIELDED — 30c yard
4 CORE SHIELDED — 40c yard
6 CORE SHIELD, Ideal for rotators 45c yard
Please add pack and post for above cable when ordering.

We also have a large range of ELECTRONIC DISPOSALS EQUIPMENT, including TRANSFORMERS, CABLE, TEST EQUIPMENT, TRANSISTERS, METERS, etc.

You are invited to call in and inspect. NO PARKING PROBLEMS A 104 HIGHETT STREET RICHMOND, Phone 42 8136.

WE STOCK CB GEAR AS WELL AT VERY COMPETITIVE PRICES, INCLUDING ANTENNAS AND ACCESSORIES.

MAIL ORDERS WELCOMED. Please allow pack and post on items listed on this page. If further information required send a stamped SAE for immediate reply from the above address. Larger items can be sent F.O.B. Due to circumstances beyond our control, prices quoted in this advertisement are subject to alteration without notice.



amateur radio

Published monthly as its official journal by the Wireless Institute of Australia, founded 1910.

MARCH 1978

Vol. 46, No. 3

PRICE: 90 CENTS

(Sent free and post paid to all members)

Registered Office:

2/517 Toorak Road,
Toorak, Victoria, 3142.

Registered at the G.P.O. Melbourne for transmission by Post as a Periodical — Category "B".

EDITOR:

BRUCE BATHOLDS*

VK3JUV

ASSISTANT EDITORS:

RON COOK*

VK3AFW

GIL SONES*

VK3AUI

TECHNICAL EDITORS:

BILL RICE*

VK3ABP

KEN PALISER

VK3GJG

CONTRIBUTING EDITORS:

BOB ARNOLD

VK3BBB

BRIAN AUSTIN

VK5CA

ROD CHAMPNESS

VK3UG

ROY CLARK*

VK3ASC

SHY FISHER*

VK3COM

DAVID HULL

VK3ZDM

ERIC JAMIESON

VK5LP

KEN JEWELL

VK3AKK

PETER MILL

VK3ZPP

KEVIN PHILLIPS

VK3AUQ

LEN POYNTER*

VK3ZOP

DRAFTING:

ALL DISTRICTS DRAUGHTING SERVICE

KEN GILLESPIE*

VK3GK

PHOTOGRAPHER:

REG GOUDGE

BUSINESS MANAGER:

PETER DODD

VK3CIF

ADVERTISING REPRESENTATIVE:

PETER SIMMONS

*Member of Publications Committee

Enquiries and material to:
The Editor,
PO Box 2611W, GPO Melb., 3001

Copy is required by the third of each month. Acknowledgment may not be made unless specifically requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hameads, and reserves the right to refuse acceptance of any material, without specifying a reason.

Advertising: Material should be sent direct to P.O. Box 189, Toorak, Vic. 3142, by the 26th of the second month preceding publication. Phone: (03) 24 8662. — Hameads should be sent direct to P.O. Box 180, Toorak, Vic. 3142, by the 3rd of the month preceding publication.

Trade Practices Act: It is impossible for us to ensure that advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are complied with strictly. Readers are reminded that, when buying, obtaining or receiving goods from overseas including goods listed in advertisements by overseas organisations in this Journal, Customs import duties and Sales Tax may be levied on the goods at the time of importation. These amounts, if any, are payable by the purchaser unless the terms of sale state otherwise and the seller has made specific provision to this effect in his quotation to the buyer or unless other prior arrangements are in force between the buyer and the seller.

Printers: EQUITY PRESS PTY. LTD.
60-52 (Killington Street, Collingwood, 3066
Tel.: 41-5054, 41-5055

QSP — WELCOME ABOARD

"Think of it fellows! Here, we have been considering it necessary for us to carry carefully planned propaganda into the broadcast camp in order to interest some of the broadcast listeners in our game, and instead we find that there are already dozens upon dozens of them sold on brass-pounding and only waiting for someone to give them the key so that they can come in with us. They have called us and now it is up to us to deliver."

So wrote the editor in the January 1926 issue of QST. You know, in some ways little has changed in our hobby — sure, the technology today is considerably more advanced than in 1926 . . . but then again that same issue of QST had articles on 5 metre equipment and the Voss picture transmitter which were surely "state of the art" for that decade.

The broadcast listeners mentioned in the Editorial were all apparently very enthusiastic about their introduction to wireless — perhaps not unlike many of the CBers today. Yesterday, many of us had our first taste of two-way radio communication while with the Army, Navy or Air Force or even the local Country Fire Authority. Some, of course, through everyday employment. Today, CB is by far the likeliest way that most newcomers to our ranks will have their appetite whetted.

Ex-CBers are entering our ranks with every exam; many at the novice level — some at the limited and full licence level.

The following statistics of the number of Australian licensees as of 30th September, 1977, are from official P. and T. Department records: Full licensees 5,943; Limited licensees 2,421; Novice licensees 687.

Further, it is believed that since these statistics were published, a further 300 Novice licensees have been issued in New South Wales alone.

We should all realize that the interest in our hobby is very much on the increase. The statistics only indicate how many licences have been issued — it is known that those studying for their licence (Full, Limited or Novice) is many times the existing number of Novice licensees.

To all newcomers and especially the Novices, the Institute says "welcome aboard" — we hope that you will enjoy the hobby as much as many of our "oldsters" have over the years. Hopefully, you will be able to expand your horizons even further by upgrading to the full ACP level.

We invite all newcomers to participate in Institute activities, especially the Federal Convention, the annual policy-making meeting of the Federal Council, which is to be held in Melbourne during April. It is at this Convention that the course of the Institute for the following year is set. All decisions are made by the Federal Council which consists of Councillors from each Division. These Councillors require input from members within their division. You are earnestly requested to make yourself known to your Federal Councillor — his name is shown in the Divisional Directory, and inform him of your ideas, complaints, suggestions, etc., for amateur radio for the ensuing year.

The door is certainly unlocked and open. It is up to you to enter.

P. WOLFENDEN VK3ZPA/HIB,
Executive Vice-President.

WIRELESS INSTITUTE OF AUSTRALIA

Federal President: Dr. D. A. Wardlaw VK3ADW

Federal Council:

VK1 Brig. R. K. Roseblade VK1QJ

VK3 Mr. T. I. Mills VK3ZTM

VK2 Mr. J. Payne VK3AED

VK4 Mr. N. J. Wilson VK4NP

VK5 Mr. I. J. Hunt VK5GX

VK6 Mr. N. R. Pentfold VK6NE

VK7 Mr. P. D. Frith VK7PF

Staff: Mr. P. B. Dodd VK3CIF, Secretary.

Part-time: Col. G. W. Perry, Mrs. J. M. Seddon and

Mr. P. Simmons (Ad advertising).

Executive Office: P.O. Box 150, Toorak, Vic. 3142.

2/517 Toorak Rd., Toorak, Ph. (03) 24 8652.

Divisional information: (all broadcasts are on Sundays unless otherwise stated):

ACT:

President — Mr. E. W. Howell VK1TH

Secretary — Mr. D. J. Farquharson VK1ZDF

Broadcasts — 3670 kHz & 148.5 MHz: 10.00Z.

NSW:

President — Mr. T. I. Mills VK3ZTM

Secretary — Mr. I. A. Mackenzie VK3ZIM

Broadcasts — 1825, 3595, 7148 kHz, 28.5, 52.1, 52.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z to 3070 kHz and ch. 3 and 6).

VIC:

President — Mr. S. T. Clark VK3ASG

Secretary — Mr. J. A. Adcock VK3ACA

Broadcasts — 1825, 3600, 7135 kHz — also on 6m, 2m SSB and 2m Ch. 2 repeater: 00.30Z (Also on Radio 3HA).

QLD:

President — Mr. D. T. Laurie VK4DT

Secretary — Mr. P. Brown VK4PZ

Broadcasts — 1825, 3590, 7140, 14342 kHz: 09.00 EST.

SA:

President — Mr. C. J. Hurst VK5HI

Secretary — Mr. C. M. Pearson VK3PE

Broadcasts — 1820, 3590, 7125, 14175 kHz: 29.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

WA:

President — Mr. R. Greenaway VK5DA

Secretary — Mr. N. R. Pentfold VK6NE

Broadcasts — 3600, 7050, 7150, 14178 kHz, 52.656 and 2m (Ch. 2): 01.30Z.

TAS:

President — Mr. R. K. Emmett VK7KK

Secretary — Mr. H. E. Hewens VK7HE

Broadcasts — 3570, 7130 kHz: 09.30 EST.

NT:

President — Mr. Doug Haig VK5JD.

Secretary — Mr. Henry Anderson VK8HA.

Broadcasts — Relay of VK5WJ on 3.55 MHz and on 148.5 MHz at 2330Z. Slow Morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal information:

VK1 — P.O. Box 46, Canberra, 2600.

VK2 — 14 Atchison St., Crownes Nest, 2005 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00).

VK3 — 412 Brunswick St., Fitzroy, 3005 (Ph. (03) 41 3538 Sat 10.00-12.00).

VK4 — G.P.O. Box 538, Brisbane, 4001.

VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).

VK6 — G.P.O. Box N1002, Perth, 6001.

VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (Incl. with VK5), Darwin AR Club, P.O. Box 1418, Darwin, 5794.

Slow Morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.



2M 55B PORTABLE

The IC202 is the ideal 2m exciter for those long-haul DX contacts or to work OSCAR. 3 watts sfo and cw. VFO control, quality manufacture and comes complete with English manual, carry strap, mic and VICOM 90 day warranty. Price \$219.

HAL Communications Corp.



The new HAL KSR3000 sensitive RTTY terminal including keyboard and video display, features scrolling, continuous, word or line transmission and Timewave for word wrap-around and blankfill. Handles baudot and ASCII (3-level) with a screen size up to 1150 cts. List price \$1499. Wiring (including SAE) for complete specifications.

JAYBEAM

MM546/70cm 4501 15.748d

PARABOLIC DISH

RA1200 432 & 1.53GHz

L.P. FILTERS

FD30M 320kHz cut-off, 1KWp max

FD30LS 320kHz cut-off, 200w max

MORSE KEYS

MX702 deluxe, marble base

MX708 economy model

MX709 operator's model

MX701 manipulator

ED103W electronic keyer

ICOM IC-22S FM transceiver

Price \$279.



Price \$279.

WHY IS THE IC22S AUSTRALIA'S TOP-SELLING VHF FM RIG?

• The 22S is renowned for quality and dependability.

• It's crystal clear — no expensive crystals required.

• Great features such as reverse repeater operation, high level of spurious attenuation, high selectivity and sensitivity.

See the review in February 1979 "Electronics Australia".

KENWOOD

KENWOOD TS-520S transceiver

TS520S HF digital transceiver

TS520S HF 160-10m transceiver

NFOS20 vfo for TS520S

TV5602 2m transceiver

TV5602 2m transceiver

TV5606 6m transceiver

TR7400 2m fm digital transceiver

MC50 desk mic dynamic

Price \$1109

\$705

\$1115

\$260

\$229

\$450

\$94

Direction: Russell J. Kelly

Peter D. Williams

Prices and specifications subject to change without notice.

Price \$1109

\$705

\$1115

\$260

\$229

\$450

\$94

THE WORLD LEADERS IN VHF NOW BRING YOU THE ULTIMATE



IC701

The fabulous state of the art ICOM IC701 solid state transceiver. The initial huge demand for this rig from U.S.A., Europe and Australia may result in delays in availability. Order your new IC701 now!

- All Solid State, even the finals.
- 100W Continuous Duty.
- All Bands 1.5 - 30MHz.
- USB, LSB CW, CW-Narrowband, RTTY.
- Double Balanced Switching. Bands Main and in both receive/transmit.
- Dual built-in individual Digital VFO's offer split frequency operation.
- ICOM's unique Push Button Tune.
- VOX, Semi break-in CW, RTT, AGC, Noise Blanker.
- Built-in Speech Processor.
- Full Sensing.
- Extremely compact.
- Digital readout and all filters built-in.
- Built-in DC power supply.
- Optional AT power supply/operates.
- Full line of accessories to suit.

IC701 TRANSCIVER \$1160

IC701PS optional AC supply \$239



ICOM IC-245 2m transceiver

- LSI synthesizer PLL • 4-digit LED readout • Transmit & receive frequencies are independently programmable on any separation.
- Receiver front-end is a balance of low noise, high-gain MOS FET & 5 section filter • TX output: 10 W PEP • Frequency step size: 5 KHz for FM, 100 KHz (with adapter) or 5 KHz for SSB.

HELLO 6M DX

Sunspot cycle #21 in now on the up-and-up! Share in some of the fun on 6 meters DX with the ICOM IC602 sub portable transceiver. The IC602 covers 52-53MHz with VFO control, RTT, effective noise blanker, provision for external power and antenna and comes complete with carrystrap, mic and English handbook. Backed by VICOM 90 day warranty. Price \$219

Antennas!

You know you can count on

hy-gain

TH6DXK 6el 10/15/20m Thunderbird \$330

TH6DXK 3el tri-band 8dBi gain \$249

TH6DXK 3el tri-band, 12' boom \$199

TRAP VERTICALS

V5R 6.7m high, 80 thru 10m, no guys \$109

V4B 4.22m high, 80 thru 10m, no guys \$89

TRAP DIPOLES

M6YV 80 thru 10m \$87

AL45DXN 40 & 80 metres, 2Kw \$94

TWO METRES

ringo \$49

The RINGO RANGER ARX-2 is a 2H gain omni-directional antenna with three half-waves in phase and a one-eighth wave matching stub. The Ringo Ranger gives an extremely low angle of radiation for better signal coverage. It is tunable over a broad frequency range and perfectly matched to 52 ohm coax. Price \$49.

4dB gain with reference to half-wave dipole.

6dB gain with reference to quarter-wave dipole.

Head Office and Mail Orders:

139 AUBURN ROAD, AUBURN, Vic.

Telephone: (03) 82.5398, (03) 813.2355

TLX 30566

Adelaide: 43.7981 Brisbane: 38 4480

Canberra: 82.3581 Gold Coast: 32.2644

Perth: 446.3232

PIRATES AND BOOTLEGGERS

Bootleggers are those importers who buy ham gear from the back streets of Tokyo and Hong Kong for resale in Australia. This equipment is usually a domestic model, lacks factory support and often has a Japanese or photocopied English manual. In some cases the gear is production line rejects. When making a purchase ask whether your new pride and joy has been supplied through an authorized distributor.

Pirates buy their transceivers from unscrupulous dealers with no interest in the effect spectrum anarchy is having on the amateur service. VICOM policy is not to supply equipment to pirates.



\$849 1020

The fabulous 1020 200W phase-locked loop transceiver offers up-to-the-minute crystal filter in standard and 4.16MHz in the final with extra voltage stabilization for minimum distortion products. Features plug-in PCB's and even the front panel can be swung out for easy servicing. A full spec catalogue is available together with charge-on-pick. Compare the 1020 with other HF transceivers and you'll be quickly convinced that it offers the best value.

YAESU

FT101E HF transceiver 160m thru 10m \$849

FL1100B HF linear amplifier \$678

FT7 communications receiver \$348

FT201D solid state HF transceiver \$1149

MORE OF THE TEAM!

FT101E HF transceiver 160m thru 10m \$849

FL1100B HF linear amplifier \$678

FT7 communications receiver \$348

FT201D solid state HF transceiver \$1149

VICOM

Graham Stallard is VICOM's South Australian distributor. Graham is able to give the personalized expert attention demanded by the serious radio amateur. Give him a call today!

SPEECH PROCESSORS

RF440 phasing type, low distortion, a/c/dc model, plug into mic line. \$172

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$140

RF550 filter type, 5dB improvement, a/c/dc, low distortion with compression level \$1

WIANEWS

The examinations and licensing areas are still causing concern as nothing further has been heard from the P. and T. Department. These questions took up much time at the January meeting of the Executive.

The Federal Education Co-ordinator put forward a suggestion that the Department should be approached to approve an amateur Examinations Committee jointly with the WIA, as it was strongly believed help was needed by the Departmental examinations section. Through the good offices of VK3YJK a professional-type of Novice examination questions bank is now in being. In order that this bank can become really effective, feedback is required in relation to analysing the answers so that the statistical results can provide material for educational measurement and evaluation.

In subsequent discussions with the Controller in the RFM Branch of the Department a promise was extracted that the idea of a joint committee would receive consideration. A further discussion was held on the question of the last October Novice exam and something may eventuate from this. If an amateur education Committee were in force this would naturally have been an excellent item for the Agenda.

The licensing delays are also a matter of much concern. As members already know, this institute has suggested, for some years now, that the systems and procedures in use by the Department should be modernised and streamlined. Less staff would then be required, in theory, to operate the licensing of amateurs in particular. The vast increase in licensing operators in other services has not helped the overall situation.

EDP

Discussions with a commercial organisation to take over our EDP and mailing service broke down, as they were unwilling to adapt any of their standard programmes for our subscription and accounting requirements. We will therefore remain with Monash for our EDP but hopefully obtaining more efficient and more economical results on transfer to a more modern computer. Our programmes are currently being converted.

RECRUITING

The response to advertisements in CB magazines has been most useful. It is revealing to read of the reasons why people are switching from CB to amateur radio. It is certainly better to have many more amateurs than a multitude of pirates.

FEDERAL CONVENTION

This is your last chance to send to your Division any Agenda items you propose for discussion at the 1978 Federal Convention.

AR AWARDS

The Publications Committee has pleasure in advising the names of the recipients of awards for the year 1977.

HIGGINBOTHAM AWARD

Mr. W. E. J. (Bill) Roper VK3ARZ, lately editor of AR.

TECHNICAL AWARD

Mr. Peter Renton VK4PV for his article on "Filament Switching from a Distance", which appeared in the November issue.

ASJA AWARD

Mr. Max Dawkins VK3TR for his "Some Field Station" article in the March issue.

SCALAR

for Antennae



Illustrated is a BASE STATION ANTENNA
Omnidirectional Gain 3 dB and 6 dB
Models G11, G21, G22.

Scalar's range of HIGH GAIN base station antennas provide an omnidirectional radiation pattern combined with gains of 3 dB and 6 dB depending on Model number. They are designed as base station antennas for two-way radio systems. Constructed of high grade aluminium, the radiating elements are completely enclosed within a fibreglass radome.

C.B. CITIZEN BAND AND PAGING ANTENNAS MARINE AND MOBILE H.F.

TUNEABLE GROUNDPLANE ANTENNAS

SIDE MOUNT DIPOLES

COAXIAL DIPOLES

HIGH GAIN ANTENNAS

DISCONE ANTENNAS

FIXED FREQUENCY GROUNDPLANE ANTENNAS -

MOBILE COAXIAL DIPOLES

UNITY GAIN - (FIBREGLASS) WHIPS

4.5 dB GAIN (FIBREGLASS) WHIPS

PHASED SIDE MOUNT DIPOLES

VHF-UHF DIRECTIONAL ANTENNAS YAGI

MAGNABASE - MAGNETIC BASE

HELICAL WHIPS - 6ft, 8ft, 12ft, 15ft

PAGING ANTENNA H.F. BALUNS

ANTENNA MOUNTING HARDWARE

ACCESSORIES

FILTERS AND DIPLEXERS PORTABLE WHIPS

H.F. MOBILE WHIPS - 6ft, 8ft, 12ft, 15ft.

FLEXIBLE, MOBILE WHIPS



SCALAR
Industries Pty Ltd
Communication Antennae Engineers

VICTORIA: 18 Shelley Ave., Kilsyth, Vic., 3137. Ph: 725-9677
Cables: WELKIN, MELBOURNE. Telex: AA34341.

Qld.: 969 Ann Street, Fortitude Valley 4006
Telephone (07) 52 2594. Telex AA 43007 WELKI.

ANODIZING ALUMINIUM

Bruce R. Kendall VK3ZDM
10 Carter Crescent, Werribee 3030

Like to home-brew your own gear?
And give it that professional look?
If yes is the answer — then anodizing
is for you!

What is anodizing and how can it help me?

When a piece of aluminium is said to be anodized, the surface is completely covered with a crystal structured coating which prevents further oxidation (corrosion) of the surface. Yes, further oxidation, because anodizing is virtually oxidizing of the aluminium surface at a predictable rate.

Any piece of aluminium that is exposed to atmosphere will oxidize of its own accord in time, depending on where it is placed and under what conditions it is exposed. Therefore this process is useful to the home handy man, the boating enthusiast, and even the radio amateur. Imagine no more corroded chassis, antenna relay boxes, etc.: the uses are endless.

To start with you will require a reasonable quality aluminium. For example, Horwood Instrument cases anodize very well, aluminium with a high alloy content sometimes doesn't, and on occasions won't at all.

Anodized aluminium can be dyed with aluminium dyestuffs in almost every colour imaginable and in many different shades (Ref. 1).

Anodizing is an electro-chemical process requiring two types of acid and one alkaline substance to initiate the process. Normally these are nitric acid, sulphuric acid and caustic soda. There are several different grades of acid on the market at varying prices. For this application industrial grade chemicals are sufficiently pure. When measuring liquid, dye powder, voltage and current, reasonable accuracy should be maintained, although most mixtures will tolerate a 10 per cent error and 20 per cent in the case of power measurements.

SAFETY

A reasonable working space will be required to set up shop safely. Ample ventilation must be provided. Placing acid baths under the garage window will provide enough ventilation to exhaust any toxic fumes. A few domestic fans placed at strategic points around the room would be advantageous.

A few simple safety precautions could save you a confrontation with the XYL. For instance, nitric acid makes a nice mess of synthetic or cotton clothing very smartly, and caustic soda takes the colouring out of your Sunday best shoes. Therefore if you own a pair of woollen strides and an old woollen jumper, I would recommend these in preference to cotton football shorts. (Don't laugh, it has happened!) Overalls are OK, but tend to hole easily,

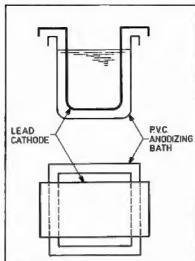


FIGURE 1

as these are predominantly cotton. Incidentally, that old pair of Fletcher Jones you have hanging in the wardrobe will make an excellent acid proof garment.

A pair of safety glasses for mixing acid would be an obvious advantage, and remember when mixing acid, add acid to water, DO NOT ADD WATER TO ACID! If you have ever done this you will know that violent reactions occur, sometimes for the worse.

CONTAINERS

To have a reasonably streamlined system you will require four containers, one for the caustic soda, one for the nitric acid, one for the water rinse and another for the sulphuric acid anodizing bath. If dyeing is going to be incorporated in the process one more container for each additional colour will be required.

What size containers you use will depend on what size work you anticipate anodizing. A cheap and readily available container is available to all OM's and XYL's with a relatively new family in junior's old or present babies' bath. Any containers that are used should be fairly solid and sturdy and be of PVC or porcelain construction.

PVC is preferred to other plastics as some are susceptible to acid and will even dissolve on contact. The sulphuric acid anodizing bath must be lead (Pb) lined. A visit to the local plumber or sheet-metal supplier should bring results here. A piece of lead sheet about 10 gauge (1/8 in.) thick, a little shorter than the bath length, covering the entire bottom and extending up both sides of the bath will be ample (Fig. 1). This is the CATHODE (—).

As this is an electro-chemical process, some form of power must be provided. A DC power supply capable of providing be-

tween 9 and 12 volts at a peak current of 30 amps will be ideal.

AC ripple filtering is not critical but should be adequate as with all electroplating processes. A variable voltage battery charger with 5000 μ F electrolytic across the rectifier will suffice.

The following table indicates current required for various metal areas.

144 sq. in.	= 15A.
96 sq. in.	= 10A.
48 sq. in.	= 5A.
9.6 sq. in.	= 1A.
(Or in metric units 645 mm per A.)	

When working out the area and current requirements the following must be taken into account: A panel has two surfaces, the front surface, which is to be clean and has the required sanded or brushed finish, and the rear surface, which can be in any dirt free condition. Therefore a panel measuring 5 x 5 in. has a surface area on one side of 25 sq. in. Sealing we have a front and a rear surface, $25 + 25 = 50$ sq. in. total. From the table we approximate 5 amps.

Three baths will be required for this process, as mentioned before.

The caustic soda bath consists of 8 pounds or 2.17 kg of caustic soda crystals mixed with 12 gallons or 54.5 litres of water.

Nitric acid bath: 50 per cent nitric acid, 50 per cent water.

Anodizing bath: 15 per cent sulphuric acid, 85 per cent water.

The chemicals should be mixed 24 hours before use to allow time to cool and stabilise.

Dyeing is the next step and as mentioned previously, the colours and shades available are limited only by your imagination. One small point here, always stir the dye before placing the aluminium in the bath as the powder components will settle on the bottom after a few hours.

PROCEDURE

STEP 1. Take the piece of aluminium to be anodized and sand with the grain of the aluminium using 400 grade Wet or

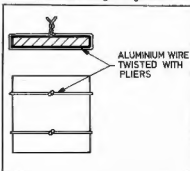


FIGURE 2

Dry sandpaper until all major scratches have been removed, keeping both the aluminium or wet and dry damp with plenty of water. Alternatively, sand blasting can be used if this facility is available, but the anodized finish is not as good and tends to go a greyish colour.

After sanding, take a pad of steel wool and a tin of Vim or Ajax from the XYL's kitchen cupboard and proceed by applying some more water to the aluminium panel and a reasonable coating of Vim or Ajax. Wet the steel wool and rub with the grain until all scratches have been removed, then rinse under water.

STEP 2. At this point we have a clean surface ready to be wrapped in wire. Aluminium wire of approximately 12 gauge (or 2.5 mm) will do nicely. Assuming a 5 in. x 5 in. panel again, place two pieces of wire flat on the bench about 4½ in. apart. Place the panel (clean face down) on the two pieces of wire and fold both ends of both pieces back over one another (Fig. 2), and twist together so a good firm connection can be maintained (Fig. 3). To maintain a good electrical connection right through the process a further twist in the wire (Fig. 4) is desirable. A word of warning, aluminium wire breaks under excessive bending. Experience will be the best teacher in this instance.

STEP 3. Surface Etch. Take the two pieces of wire left protruding from the bound aluminium panel and twist together at the top so as to form one connection point. Take the aluminium panel by the end of the protruding wire and place into the caustic soda bath for one minute approximately. A piece of PVC tubing or wood may be placed across the bath and the aluminium wire hooked over the tubing to save tired arms. After one minute, remove the panel from the caustic bath and rinse in a bath of water. After rinsing place the sheet in the nitric acid bath for 30 seconds.

The caustic soda gives a mild etch and takes any surface dirt out of the pores of the aluminium. The nitric acid acts as a surface cleaner, removing dirt etched out by the caustic leaving a near perfectly clean and positively grease-free surface to be anodized. After the 30 second etch, rinse clean in water. Do not touch the aluminium surface after it has been removed from the nitric bath as this will result in contamination of the surface due to body oils, etc.

STEP 4. Take the piece of PVC tubing, place it across the anodizing bath and submerge the panel about half way between the bottom of the bath and the liquid surface, hooking the wire over the tubing as before. Connect the negative lead of the power supply to the lead cathode lining the tank and the positive lead to the aluminium wire, making the panel the anode.

Check that the panel is not touching the lead liner and make sure the power leads are firmly connected (alligator clips with a 50 amp rating are suggested).

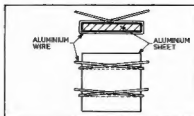


FIGURE 3

Throw the power supply switch and turn the voltage up to 10 volts (9-12V). Again, using a 5 in. x 5 in. sheet we would expect currents of approximately 4-7A to register. This will vary due to acid consistency and temperature.

The bath should be left for 40 minutes, checking the voltage and current every 10-15 minutes, adjusting when required.

Depending on the temperature of the acid, a white smoky effect will appear in the anodizing bath after the power is switched on, this is normal in this process.

An air purge line lightly bubbling in the bath will keep the acid agitated and cool during the process.

After the 40 minutes has elapsed, switch off the power supply and remove the power leads. Lift panel from bath, allowing excess acid to run off.

At this point a decision has to be made, to leave the aluminium clear with a protective finish or to colour the surface with one of the many dyes mentioned in Ref. 1.

If a clear finish is desired rinse the aluminium in very hot water to seal the surface.

However if a dyed surface is required, rinse in cold water, this allows the pores to stay open and accept the dye.

STEP 5. After panel has been rinsed in hot water nothing more need be done, the aluminium is anodized; but if a dyed surface is required two more simple steps need to be taken.

Firstly, loosen the tie wire slightly to allow the dye to run under the wire. Then place the aluminium in the dye bath (stirring before suspending) in the same manner as with the anodizing bath. The aluminium must be left in the dye for a good 20-30 minutes. Then remove from dye bath and rinse under the hot tap, sealing the dye into the surface.

After rinsing, hang the panel up to dry for a few minutes and allow hot water to steam off. It will be noticed that a powdery surface is present; remove this by taking a piece of paper towel or old clean rag and wipe in the direction of the aluminium grain.

To bring a rich strong colour to the surface, apply a thin smear of glycerine or machine oil to the surface and remove excess with a paper towel. Store in a plastic bag.

Well, there it is, anodizing in a nutshell, the way the professionals do it. As mentioned before, the uses are endless. One that comes to mind is anodizing heat sinks

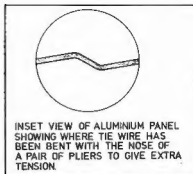


FIGURE 4

INSET VIEW OF ALUMINIUM PANEL SHOWING WHERE TIE WIRE HAS BEEN BENT WITH THE NOSE OF A PAIR OF PLIERS TO GIVE EXTRA TENSION.

black, BUT be careful, anodizing forms an insulating coating on the surface, therefore if electrical connection is needed, the surface will have to be filed through.

Ref. 1. "Aluminium Dyestuffs", by Durand and Huguenin. Australian Agents, Sandoz Australia Pty. Ltd., 675-685 Warrigal Road, Chadstone 3148. Tel.: (03) 568 1033.

One final word concerning acid waste disposal. The Melbourne and Metropolitan Board of Works Trade Wastes Department will provide the necessary information. They can be contacted by ringing 62 0221, ext. 4721, or by writing to 625 Little Collins Street, Melbourne 3000.

If resident outside MMBW's area of control contact your local sewerage authority.

"WILLIS" AIR-WOUND INDUCTANCES

Take the hard work out of Coil Winding, use — "WILLIS" AIR-WOUND INDUCTANCES

No.	Turns	Dia. per inch	L'gth inch	B & W No.	Price
1.08	½	8	3	No. 3002	99c
1.16	½	16	3	No. 3003	99c
2.08	¾	8	3	No. 3006	\$1.16
2.16	¾	16	3	No. 3007	\$1.16
3.08	¾	8	3	No. 3010	\$1.40
3.16	¾	16	3	No. 3011	\$1.40
4.08	1	8	3	No. 3014	\$1.56
4.16	1	16	3	No. 3015	\$1.56
5.08	1 ¼	8	4	No. 3018	\$1.75
5.16	1 ¼	16	4	No. 3019	\$1.75
6.10	2	10	4	No. 3907	\$2.52

Special Antenna All-Band Tuner Inductance
(equivalent to B. & W. No. 3907, 7 inch)

7" length, 2" dia., 10 TPI Price \$4.36
Reference: A.R.R.L. Handbook, 1961

Willis Pi-Coupler Unit — \$23.95
Stockists of Transmission Cables, Insulators and Hard Drawn Copper Antenna Wire
Write for range of Transmission Cables

WILLIAM WILLIS & CO.

REV. LTD.
Manufacturers and Importers
77 CANTERBURY RD., CANTERBURY
VIC. 3126 Phone 836-0707



HF Mobile Transceiver FT-7

The all-solid state FT-7 mobile transceiver provides high performance on the 80 through 10 metre bands. The operator may select upper or lower sideband or CW operation, and the compact package provides many features engineered for convenience while mobile. A single knob provides all transceiver tuning, and the state-of-the-art noise blanker minimizes impulse-type noise such as that

found in mobile applications. Inbuilt speaker, with provision for external speaker or phones. 500 KHz coverage on 10m. The FT-7 is designed for operation directly from your car's 12 volt battery. Dial and meter attractively illuminated in colour. Mic, mobile mount, power cable inc.; also tilt stand for base station operation. **Priced at \$578.**

Features

- 100 KHz calibrator is built in.
- Semi-break-in with sidetone
- MOS FET receiver front end
- Receiver offset tuning
- Choice of frequency control between internal VFO, fixed channel, or external VFO

- Single-knob tune-up eliminates fumbling around panel searching for load and plate controls.
- Extremely compact size for installation under dashboard
- Matching AC power supply with provision for crystal controlled operation available.

*Availability and price of these items TBA.

Prices and specifications subject to change.

Manufacturer's technical data

GENERAL

Frequency coverage: 80m 3.5–4.0 MHz, 40m 7.0–7.5 MHz, 20m 14.0–14.5 MHz, 15m 21.0–21.5 MHz, 10m 28.5–29.0 MHz installed; any 500 KHz segment between 28.0 and 29.7 MHz available as option.
Emission: LSB, USB (A3J), CW (A1)
Input power: A1, A3J, 20 watts DC
Carrier suppression: Better than 50 dB below rated output
Unwanted sideband suppression: Better than 50 dB @ 1000 Hz
Spurious emission: Better than –40dB

Distortion products: Better than –31 dB

Transmitter frequency response: 350–2700 Hz –6dB

Frequency stability: Less than 300 Hz drift from a cold start; less than 100 Hz over a 30 minute period after warm-up.

Antenna output impedance: 50 Ohms nominal

Microphone input impedance: 500 Ohms nominal

RECEIVER

Sensitivity: 0.5 μ V for S/N 20 dB

Image rejection: Better than 50 dB

IF rejection: Better than 50 dB

Selectivity: –6 dB: 2.4 KHz, –60 dB: 4.0 KHz

Cross-modulation: Better than 60 dB immunity at 20 KHz off a 20 dB input signal typical.

Audio output: 3 watts @ 10% THD

Audio output impedance: 4 Ohms

Power requirements: 13.5 VDC \pm 10%, 23A VAC 50/60 Hz (with FP-7 or FP-4 power supply)

Power consumption: 13.5 VDC–3 A transmit, 0.4 A receive

Dimensions: 230(W) x 80(H) x 290(D) mm **Weight:** 5 kg

JA5778-41



ELECTRONIC SERVICES

FRED BAIL VK3YS
JIM BAIL VK3ABA

60 Shannon St., Box Hill North, Vic., 3129.
Ph. (03) 89 2213

Yaesu Agents in Australia since 1963

Radio amateur equipment from B.E.S. also sold by —

W.A. Radio Communication Services, H. R. PRIOR, 28 Lockhart St.,

Como, 6152

WILLIS TRADING CO., 429 Murray Street, Perth 6000

S.A. FARMERS RADIO PTY. LTD., 20 Stanley St., Plympton 5038

TAS. G. T. ELECTRONICS, 131 Westbury Rd., South Launceston 7200

PRINS RADIO, 123 Argyle Street, Hobart 7000

N.S.W. Aviation Tooling, STEPHEN KUHL, 104 Robey St., Mascot 2020

Amateur & Non-Comm. Supplies, W. E. BRODIE, 23 Delray Street,

Seven Hills 2147

DIGITRONICS, 188 Perry St., Newcastle West 2302

RIVERCON, 814 Ward, 9 Copeland St., Wagga Wagga 2650

QLD. H. C. BAYLOW, 52 Charles St., Albionville, Townsville 4814

MITCHELL RADIO CO., 58 Albion Rd., Albion 4210

A.C.T. QUICKTRONIC, Jim Bland, Shop 11, Alfreo Crt., Phillip 2606

Ph. 450 4379

Ph. 21 7806

Ph. 263 2155

Ph. 44 4773

Ph. 34 6912

Ph. 667 1550

Ph. 324 2691

Ph. 69 2040

Ph. 21 2125

Ph. 79 6179

Ph. 57 0630

Ph. 81 2824

62 2864

ELECTRONIC ENTHUSIASTS EMPORIUM

POPULAR INTEGRATED CIRCUITS IN STOCK

CA3012	CD4826	CD4724	LM390N	MC1496K	UAA180
CA3013	CD4827	LM390N	LM390N	MC1496K	UAA180
CA3018	CD4828	CD40098	LM392N	MC1496K	LM723
CA3023	CD4829	CD40174	LM397N	MC1848P	ULN2208
CA3028A	CD4830	CD40175	LM398H	MC4044P	ULN2209
CA3035	CD4831	CD40192	LM555CN	OM802	ULN2211
CA3039	CD4832	CD40194	LM555H	SAJ110	74C00
CA3046	CD4840	CD40195	LM555H	SAJ110	74C00
CA3053	CD4841	DM9097 1 30	LM567CN	SD3050E	74C04
CA3059	CD4842	HEF see "CD"	LM567H	SD3060E	74C10
CA3060	LM3046	LM1144H	LM709N	SL4145A	74C14
CA3079	CD4044	LM1145H	LM710CN	SL445A	74C20
CA3080	CD4045	LM301AH	LM710CN	SL4470	74C85
CA3081	CD4046	LM301CH	LM723H	SL447	74C86
CA3082	CD4047	LM3044H	LM723H	SL447	74C150
CA3083	CD4048	LM305AH	LM723H	SL447	74C160
CA3086	CD4050	LM307N	LM723H	SL447	74C162
CA3089	CD4051	LM308V	LM723H	SL447	74C174
CA3900	CD4052	LM398H	LM733CH	SL612C	74C192
CA391	CD4053	LM310N	LM733H	SL613C	74C201
CA3170E	CD4054	LM311A	LM741CH	SL620C	74C20
CA3172E	CD4055	LM311H	LM741CH	SL621C	74C25
CA3128E	CD4056	LM312H	LM747CH	SL623C	80C95
CA3130T	CD4057	LM317K	LM747CH	SL623C	80C95
CA3140T	CD4071	LM318N	LM748CN	SL624C	AL5352
CA3500	CD4072	LM319H	LM1303N	SL630C	QL4484
CA3501	CD4073	LM319H	LM1310N	SL640C	QL5253
CD4001	CD4076	LM320K	LM1458H	SL641C	SL31
CD4002	CD4078	LM320T	LM1488N	SL645C	RL4484
CD4006	CD4081	LM322N	LM1489N	SL901B	RL5023
CD4007	CD4082	LM323K	LM1490N	SL917B	TL0035
CD4008	CD4085	LM324N	LM1808N	SL1310	FNO500
CD4009	CD4086	LM325N	LM3028	SL3046	9001
CD4010	CD4083	LM328H	LM3086	SP8515	9001
CD4011	CD4084	LM328H	LM3900	TAA309	9001
CD4012	CD4085	LM340K	LM3900	TAA309	9001
CD4013	CD4086	LM340T	LM3900	TAA309	9001
CD4014	CD4087	LM349N	LM3900	TAA309	9001
CD4015	CD4088	LM358N	MC1035P	TAA309	9001
CD4016	CD4089	LM358N	MC1035P	TAA309	9001
CD4017	CD4090	LM358N	MC1035P	TAA309	9001
CD4018	CD4091	LM358N	MC1035P	TAA309	9001
CD4019	CD4092	LM358N	MC1035P	TAA309	9001
CD4020	CD4093	LM358N	MC1035P	TAA309	9001
CD4021	CD4094	LM358N	MC1035P	TAA309	9001
CD4022	CD4095	LM358N	MC1035P	TAA309	9001
CD4023	CD4096	LM358N	MC1035P	TAA309	9001
CD4024	CD4097	LM358N	MC1035P	TAA309	9001
CD4025	CD4098	LM358N	MC1035P	TAA309	9001
CD4026	CD4099	LM358N	MC1035P	TAA309	9001
CD4027	CD4100	LM358N	MC1035P	TAA309	9001
CD4028	CD4101	LM358N	MC1035P	TAA309	9001
CD4029	CD4102	LM358N	MC1035P	TAA309	9001
CD4030	CD4103	LM358N	MC1035P	TAA309	9001
CD4031	CD4104	LM358N	MC1035P	TAA309	9001
CD4032	CD4105	LM358N	MC1035P	TAA309	9001
CD4033	CD4106	LM358N	MC1035P	TAA309	9001
CD4034	CD4107	LM358N	MC1035P	TAA309	9001
CD4035	CD4108	LM358N	MC1035P	TAA309	9001
CD4036	CD4109	LM358N	MC1035P	TAA309	9001
CD4037	CD4110	LM358N	MC1035P	TAA309	9001
CD4038	CD4111	LM358N	MC1035P	TAA309	9001
CD4039	CD4112	LM358N	MC1035P	TAA309	9001
CD4040	CD4113	LM358N	MC1035P	TAA309	9001
CD4041	CD4114	LM358N	MC1035P	TAA309	9001
CD4042	CD4115	LM358N	MC1035P	TAA309	9001
CD4043	CD4116	LM358N	MC1035P	TAA309	9001
CD4044	CD4117	LM358N	MC1035P	TAA309	9001
CD4045	CD4118	LM358N	MC1035P	TAA309	9001
CD4046	CD4119	LM358N	MC1035P	TAA309	9001
CD4047	CD4120	LM358N	MC1035P	TAA309	9001
CD4048	CD4121	LM358N	MC1035P	TAA309	9001
CD4049	CD4122	LM358N	MC1035P	TAA309	9001
CD4050	CD4123	LM358N	MC1035P	TAA309	9001
CD4051	CD4124	LM358N	MC1035P	TAA309	9001
CD4052	CD4125	LM358N	MC1035P	TAA309	9001
CD4053	CD4126	LM358N	MC1035P	TAA309	9001
CD4054	CD4127	LM358N	MC1035P	TAA309	9001
CD4055	CD4128	LM358N	MC1035P	TAA309	9001
CD4056	CD4129	LM358N	MC1035P	TAA309	9001
CD4057	CD4130	LM358N	MC1035P	TAA309	9001
CD4058	CD4131	LM358N	MC1035P	TAA309	9001
CD4059	CD4132	LM358N	MC1035P	TAA309	9001
CD4060	CD4133	LM358N	MC1035P	TAA309	9001
CD4061	CD4134	LM358N	MC1035P	TAA309	9001
CD4062	CD4135	LM358N	MC1035P	TAA309	9001
CD4063	CD4136	LM358N	MC1035P	TAA309	9001
CD4064	CD4137	LM358N	MC1035P	TAA309	9001
CD4065	CD4138	LM358N	MC1035P	TAA309	9001
CD4066	CD4139	LM358N	MC1035P	TAA309	9001
CD4067	CD4140	LM358N	MC1035P	TAA309	9001
CD4068	CD4141	LM358N	MC1035P	TAA309	9001
CD4069	CD4142	LM358N	MC1035P	TAA309	9001
CD4070	CD4143	LM358N	MC1035P	TAA309	9001
CD4071	CD4144	LM358N	MC1035P	TAA309	9001
CD4072	CD4145	LM358N	MC1035P	TAA309	9001
CD4073	CD4146	LM358N	MC1035P	TAA309	9001
CD4074	CD4147	LM358N	MC1035P	TAA309	9001
CD4075	CD4148	LM358N	MC1035P	TAA309	9001
CD4076	CD4149	LM358N	MC1035P	TAA309	9001
CD4077	CD4150	LM358N	MC1035P	TAA309	9001
CD4078	CD4151	LM358N	MC1035P	TAA309	9001
CD4079	CD4152	LM358N	MC1035P	TAA309	9001
CD4080	CD4153	LM358N	MC1035P	TAA309	9001
CD4081	CD4154	LM358N	MC1035P	TAA309	9001
CD4082	CD4155	LM358N	MC1035P	TAA309	9001
CD4083	CD4156	LM358N	MC1035P	TAA309	9001
CD4084	CD4157	LM358N	MC1035P	TAA309	9001
CD4085	CD4158	LM358N	MC1035P	TAA309	9001
CD4086	CD4159	LM358N	MC1035P	TAA309	9001
CD4087	CD4160	LM358N	MC1035P	TAA309	9001
CD4088	CD4161	LM358N	MC1035P	TAA309	9001
CD4089	CD4162	LM358N	MC1035P	TAA309	9001
CD4090	CD4163	LM358N	MC1035P	TAA309	9001
CD4091	CD4164	LM358N	MC1035P	TAA309	9001
CD4092	CD4165	LM358N	MC1035P	TAA309	9001
CD4093	CD4166	LM358N	MC1035P	TAA309	9001
CD4094	CD4167	LM358N	MC1035P	TAA309	9001
CD4095	CD4168	LM358N	MC1035P	TAA309	9001
CD4096	CD4169	LM358N	MC1035P	TAA309	9001
CD4097	CD4170	LM358N	MC1035P	TAA309	9001
CD4098	CD4171	LM358N	MC1035P	TAA309	9001
CD4099	CD4172	LM358N	MC1035P	TAA309	9001
CD4100	CD4173	LM358N	MC1035P	TAA309	9001
CD4101	CD4174	LM358N	MC1035P	TAA309	9001
CD4102	CD4175	LM358N	MC1035P	TAA309	9001
CD4103	CD4176	LM358N	MC1035P	TAA309	9001
CD4104	CD4177	LM358N	MC1035P	TAA309	9001
CD4105	CD4178	LM358N	MC1035P	TAA309	9001
CD4106	CD4179	LM358N	MC1035P	TAA309	9001
CD4107	CD4180	LM358N	MC1035P	TAA309	9001
CD4108	CD4181	LM358N	MC1035P	TAA309	9001
CD4109	CD4182	LM358N	MC1035P	TAA309	9001
CD4110	CD4183	LM358N	MC1035P	TAA309	9001
CD4111	CD4184	LM358N	MC1035P	TAA309	9001
CD4112	CD4185	LM358N	MC1035P	TAA309	9001
CD4113	CD4186	LM358N	MC1035P	TAA309	9001
CD4114	CD4187	LM358N	MC1035P	TAA309	9001
CD4115	CD4188	LM358N	MC1035P	TAA309	9001
CD4116	CD4189	LM358N	MC1035P	TAA309	9001
CD4117	CD4190	LM358N	MC1035P	TAA309	9001
CD4118	CD4191	LM358N	MC1035P	TAA309	9001
CD4119	CD4192	LM358N	MC1035P	TAA309	9001
CD4120	CD4193	LM358N	MC1035P	TAA309	9001
CD4121	CD4194	LM358N	MC1035P	TAA309	9001
CD4122	CD4195	LM358N	MC1035P	TAA309	9001
CD4123	CD4196	LM358N	MC1035P	TAA309	9001
CD4124	CD4197	LM358N	MC1035P	TAA309	9001
CD4125	CD4198	LM358N	MC1035P	TAA309	9001
CD4126	CD4199	LM358N	MC1035P	TAA309	9001
CD4127	CD4200	LM358N	MC1035P	TAA309	9001
CD4128	CD4201	LM358N	MC1035P	TAA309	9001
CD4129	CD4202	LM358N	MC1035P	TAA309	9001
CD4130	CD4203	LM358N	MC1035P	TAA309	9001
CD4131	CD4204	LM358N	MC1035P	TAA309	9001
CD4132	CD4205	LM358N	MC1035P	TAA309	9001
CD4133	CD4206	LM358N	MC1035P	TAA309	9001
CD4134	CD4207	LM358N	MC1035P	TAA309	9001
CD4135	CD4208	LM358N	MC1035P	TAA309	9001
CD4136	CD4209	LM358N	MC1035P	TAA309	9001
CD4137	CD4210	LM358N	MC1035P	TAA309	9001
CD4138	CD4211	LM358N	MC1035P	TAA309	9001
CD4139	CD4212	LM358N	MC1035P	TAA309	9001
CD4140	CD4213	LM358N	MC1035P	TAA309	9001
CD4141	CD4214	LM358N	MC1035P	TAA309	9001
CD4142	CD4215	LM358N	MC1035P	TAA309	9001
CD4143	CD4216	LM358N	MC1035P	TAA309	9001
CD4144	CD4217	LM358N	MC1035P	TAA309	9001
CD4145	CD4218	LM358N	MC1035P	TAA309	9001
CD4146	CD4219	LM358N	MC1035P	TAA309	9001
CD4147	CD4220	LM358N	MC1035P	TAA309	9001
CD4148	CD4221	LM358N	MC1035P	TAA309	9001
CD4149	CD4222	LM358N	MC1035P	TAA309	9001
CD4150	CD4223	LM358N	MC1035P	TAA309	9001
CD4151	CD4224	LM358N	MC1035P	TAA309	9001
CD4152	CD4225	LM358N	MC1035P	TAA309	9001
CD4153	CD4226	LM358N	MC1035P	TAA309	9001
CD4154	CD4227	LM358N	MC1035P	TAA309	9001
CD4155	CD4228	LM358N	MC1035P	TAA309	9001
CD4156	CD4229	LM358N	MC1035P	TAA309	9001
CD4157	CD4230	LM358N	MC1035P	TAA309	9001
CD4158	CD4231	LM358N	MC1035P	TAA309	9001
CD4159	CD4232	LM358N	MC1035P	TAA309	9001
CD4160	CD4233	LM358N	MC1035P	TAA309	9001
CD4161	CD4234	LM358N	MC1035P	TAA309	9001
CD4162	CD4235	LM358N	MC1035P	TAA309	9001
CD4163	CD4236	LM358N	MC1035P	TAA309	9001
CD4164	CD4237	LM358N	MC1035P</		

on CW the Operate/PTT switch (slider type) have to be placed in the Operate position before keying can be started and then returned to PTT to bring the receiver back on. The alternative is to operate the key with one hand and the microphone PTT switch with the other. Naturally enough the slide switch would have a very short life if CW was the main mode used.

Firstly a keying monitor was added and this proved to be a great improvement over the former system. Further investigation showed that it was possible to use this monitor to trigger the VOX and the final outcome was a workable break-in system. Before attempting to make any modifications I would strongly suggest a very careful study of both the transceiver circuit diagram and the actual circuit components. Unlike the FT-101 which is much neater with its plug-in boards, the FT-100B circuit is more difficult to follow around the looms, switches, relays, etc. Rather than giving a step by step description, I would refer anyone making the modifications to the circuit in Figure 2 and when combined with the original circuit the operating and physical details will be more apparent. Actual layout isn't particularly critical and in my case additional parts were mounted on tag strips. Shield and bypass if necessary the leads going to

the VOX and receiver audio amplifier stages to prevent RF feedback.

A BC208 is used as the audio oscillator. By using existing switches isolated by diodes the 12 volt supply is either cut off or the transistor biased off in all conditions except the CW/TUNE mode. Before doing this modification the circuit must first be changed as shown in Figure 1. The output from the oscillator is fed to the receiver audio stage and the level is preset; when the transmitter is operated in the CW or TUNE mode the bias is removed and the oscillator turned on. In the TUNE position the tone is a handy reminder that the transmitter should only be operated for short periods to prevent damage to the finals. This feature is found in the FT-401 and similar models but is notably lacking in the FT-101 series. One feature should be carefully noted with this modification. If the VOX switch is in the ON position and the plug from the key is removed from the key jack while the transceiver is in the CW-TUNE position on receive, the transceiver will lock on at full input. This may result in damage to the final tubes, especially if the antenna has been disconnected, however under this condition the CW monitor will operate and indicate a transmit condition is occurring thus providing an audible alarm.

In addition to the modifications shown in Figure 2 the following minor modifications were also necessary (refer to transceiver circuit). A 1.2 k ohm resistor was connected from the junction of R237, R238 and C232 to earth. Remove the existing link between this point and the junction of R312, R313 and C316. Feed this point from the 12 volt positive rail via 470 ohm resistor. A 0.22 uF capacitor was added to the RC network in the VOX circuit (across the pair of 0.05 capacitors) to increase the hold-in time of the VOX. This may have to be individually adjusted to suit operator's tastes. Less C will make the relay pull in more quickly when the key is first closed but will also drop out again very quickly. More C will increase the time before the relay pulls in due to the increased charge time but will also hold the relay closed after the key is opened until the charge on the C decays.

The VOX circuit is wired through two switches (VOX ON/OFF and SW POT. ON VOX SENSITIVITY CONTROL), this gives an added safety factor in case the VOX is accidentally left on.

To operate break-in advance the sensitivity potentiometer to mid position or slightly further and the transmitter should key almost as soon as the key is pressed.

ADDITIONAL OPERATING NOTES FOR G3LLL FT200/FT250/TEMPO-ONE RF CLIPPER

J. Holding, G3LLL

The following details may be of help to purchasers of the G3LLL RF clipper.

ALIGNMENT (Note. Some cores may be sealed with wax. If so heat with fine tip of soldering iron before attempting adjustment.)

Tune to calibrator signal at 21.1 MHz with clipper switched in, and peak L103 and L104 for maximum "S" meter reading. Tune carefully across the signal and note any excessive peaks or troughs in the response, and if necessary slightly re-adjust L103 and L104 to even the response out. Re-check the response by tuning to the calibrator signal on the 20 and 80 metre bands. If the response is any less even on these bands reset trap coil L1 (see picture page 20 FT 200 manual) so as to even out the response and prevent any tendency to oscillation on these bands.

CARRIER CRYSTAL FREQUENCIES

Carrier crystal setting is more critical on receive than it is on transmit when using the clipper, and occasionally it may be desirable to adjust TC.101 or TC.102. Set for best received audio quality with the clipper switched in.

TRYING IT OUT

80 metres is not the ideal band to test clippers on as signals are usually strong. By all means ask for quality reports but only expect a really noticeable improvement in readability when your signals are below strength 5.

TRY THIS WITH THE TECHNICAL EDITORS

OP-AMP TESTER

Ever built up a circuit using one of those new-fangled op. amp. I.C.'s and found that it didn't work? Was it the circuit or that multi-legged bug that was at fault? Perhaps you gave up and still don't know. Well here is the good news. Build this circuit and you can check all 709 or 741 type op. amps. The bad news is that you need to wire in three sockets to accommodate all three package configurations. Ah well, life wasn't meant to be easy.

The circuit was developed by A. R. Owens and published in CQ-TV No. 98, November 1976. The circuit provides indications of the op. amp.'s state of health as follows:

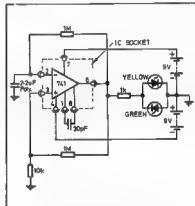


FIGURE 1

Both LED's flash alternately, equal period, 2 second rate — amp. OK

Both LED's flash alternately, but periods unequal — amp. amplifies but has unequal leakage currents.

One LED lit — Input fault.

Neither LED lit — output fault (or battery flat).

No switch is provided as the current drain from the battery is zero until an op. amp. is pushed into the socket.

VK3AFW.

WITH THE BOWER BIRD

"FREAKS"

A. Shawsmith VK4SS
35 Whyntel Street, West End, 4001

It is the private or amateur collector who has been, is and quite likely will remain the strongest force in the preservation of early wireless. Bitten by the "bug", it is his persistent efforts that unearth so many facts and relics of the past, before they are lost forever in the land of the limbo.

As most are aware, we, in this country, for better or worse follow USA trends. In the States, these past few years, there has been a large upswing in the number of bona fide collectors of early wireless and electronic gear. It is encouraging to observe the beginnings of a similar happening here.

The Antique Wireless Association (AWA) of America, with a membership of several hundred is probably the largest single group of private collectors in the world. They are mostly OT amateur and commercial wireless operators. The Association maintains a large museum, which is one of the finest of its kind.

One USA "Who's Who" lists almost 600 private collectors along with their particular interests (as distinct from business houses, museums, etc.). This number could probably be safely multiplied several times, as many, for personal reasons, keep their names off registers — and seldom, if ever, advertise.

Most collectors get started by accident. Aunt Martha's tattered and musty old cathedral has finally gone on the blink, after years of humming and rattling and she wants it fixed. It turns out to be nearly as ancient as the old girl herself: everything in its cockroach-marked interior looks mummified and gargantuan by modern standards. You notice that the cabinet is no flimsy affair but solid oak, ornately finished. Maybe you're no longer turned on by the modern modular units — anyway, you decide to restore and keep it and tell Aunt Martha a white lie by saying it's had its day.

A lay friend drops by with something lumpy wrapped up in half a newspaper. "Dunno exactly what it is but it's been kicked around the garage for years". The object turns out to be a 1920 loose-coupler, built along classical lines. It's complete with variable condenser, glass closed and with tones to match. You realize what an elegant piece it would be, with its brass gleaming, coils cleaned and the redwood base repolished: you can't wait to get started on it. You're hooked and new horizons are about to appear — and the following doggerel might apply:

"Once the 'bug' has really bit
— protest but that's the end of it.
Nothing now, the fates proclaim
Can ever be again the same."

One has only to read such USA newspapers as "The Collector's News", "An-



Fin Stewart, Foulconbridge, N.S.W. Australia — Pictured is Fin in a corner of his large museum, believed to be the largest in the southern hemisphere. Although his speciality is early tubes and lamps, he does have a fine collection of broadcast receivers and related equipment.
Photo by courtesy of Q.T.B., USA.

tique Monthly" and others, to realize that if a thing — any old thing at all — has a physical dimension, then there's a collector for it. The scope seems absolutely endless. The same applies within the framework of electronics: the problem is one of a surfeit of choices.

Some collectors set their sights at the widest possible angle and collect all phases, from the early telegraph to the 1950s. Most, however, develop a particular interest and stick to it. Pre-WWII commercial B/C sets are a popular item and in this field alone, the divisions are many and varied. Some concentrate on eras, or on one or other of the hundreds of specific makes, in an endeavour to obtain all the models produced. Others simply go for the variety of cathedrals available, while others again stick to battery type only. Then there's the "Spark" enthusiast who wants the rare 1900-1915 gear. Old disc devotees like to give their 78s authenticity by playing them through "hi-fis" of the same period. Others make test instruments their thing — the more ancient, the better.

Certain collectors have a passion for component parts, odd spider-wound and honeycomb coils, variocouplers, tubes, Victorian shaped AFTs, condensers, etc. These they display to the best advantage, rightly claiming that such parts are hidden in most cabinet receivers and seldom, if ever, seen.

Specialists narrow their interests to and expand their knowledge in tubes and

valves, globes, meters, headphones, telephones, telegraph and associated equipment, Morse keys, etc.

Hornspeakers seem to have a fascination for one and all. They stand anywhere, as a symbol of the first "talking" sets. Their varying shape, style, size and performance has been described as poetic to weird. A glance through McMahon's Vintage Radio Book will confirm this.

Since the first crude earpiece was constructed, hundreds of different types and makes have come on to the market. Pinned to a board in the museum of AWA, USA, are over fifty different headsets, all of which were produced within a span of a few years, in the 1920s. They are displayed to show the diversity that existed, even in those days.

It may surprise most readers to know that in the USA alone, over 1000 patents have been taken out for Morse keys — mostly different in design. This number could probably be doubled, as many more were put on the market, plus the types made and used in the Armed Services in WWII. Add to this the number produced elsewhere in the world and the total becomes such that any avid magpie for Morse keys could only hope to obtain a fraction of what is available in his lifetime.

Our newly-gained influence has altered the life style in most households. Ham shacks have come in out of the cold, from sheds and corners under the house, to an indoor's habitat. Most hi-fi enthusiasts

WORLD'S RAREST RECEIVER LOST



Is this the most famous of them all? It is claimed that this LF COHERER RECEIVER was the one used by Marconi on Signal Hill, in 1901, when he received the now famous three dots (letter "S") from the UK across the Atlantic.

Marconi is supposed to have placed the set in the care of a friend, George Clark (OM at right in dark coat). When George died in 1966, all his historical equipment was dispersed and the whereabouts of what could be the world's most famous receiver is now a mystery.

Photo by courtesy of AWA, USA.

manage to set up a separate den, complete with their equipment and wall decor. Collectors, too, try to show off their bits and pieces to the best advantage — or should do so, as early wireless and other gear has a tremendous visual appeal and an even bigger talking point. A half dozen such adornments spread around a shack that is already covered with rare QSLs, certificates and other decor, will win out over the latter every time. Even the totally uninitiated seem to be charmed — particularly if the stuff works. Many pieces of early gear were handsome instruments, craftsmen or individually made, with much attention given to quality and aesthetics, the like of which will never be seen again.

The esoteric language of the collector can be quite confusing to the layman. It is well understood what is meant by certain words:—

MINT, in the world of phifately, means new (and once a new stamp has been hinged, it then becomes **UNUSED**): in the wireless collector's book, it could indicate something that has had considerable use for many years but still looks and works as new

The one word most abused and over which so many are confused is **ANTIQUE**. Any object has to be 100 years old to earn this distinction. Some Morse keys and telegraphic instruments qualify, as they date back to 1848 — but, as wireless started with Marconi, around 1900, there is, in theory, no such thing as Antique Radio. Yet every day there are advertisements to the effect "SOLD B/C GENUINE ANTIQUE". This does not mean the seller is out to deceive, as by common consent dealers and collectors seem to have set 50 years, not 100 years, as their own standard of antiquity. It must be admitted, however, that this shortened period probably has commercial advantages. **ANTIQUE** is an evocative word — and consequently likely to enhance sales.

WIRELESS is a term that came into being at the turn of the century and continued until the early commercial broadcasting days in the late 1920s. The word **RADIO** then began to have common usage.

VINTAGE, in its loosest application, could mean any time prior to 1950. So, gear designated as such denotes little unless followed by a date or circa.

CLASSIC is another that creates confusion. Some collectors regard any equipment over 25 years old as a classic. Others apply it in the sense that it means any piece, of any period, that's outstanding in workmanship and performance. Then again, there are those who tag it to custom or specially built equipment of high quality, as against that which is mass produced.

Unless there is a need to be specific, or definitive, it is probably best to use the word **EARLY** rather than the above terms and so avoid misunderstanding.

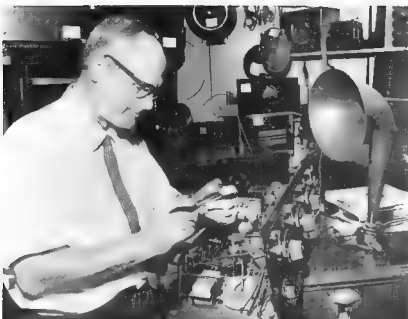
How and where to unearth the goodies, at a price the amateur hip pocket can stand, is a subject of endemic discourse among those of the cult. Their persistent efforts to run a particular place to ground would draw comment from Sherlock Holmes. Collectors habitually anoop antique stores, trash and treasure displays, flea markets, disposal shops, junk yards, swap meets, auction marts, pawnbrokers, town dumps, etc. — eternally hoping that something new will turn up. Were it simply a matter of placing an ad, in the local news and then going around picking up the raries, the game would lose its savour and challenge and half of them would drop out.

Club membership is probably the best way to spread your word around. An advertisement placed in the right paper or magazine, from time to time, is likely to produce results. A reliable overseas source is another must: here, the USA offers the greatest possibilities.

The private collector usually prefers to trade, or swap, rather than to sell. In the world of musty, rusty and dusty early components, parts and other gear, a level of supply and demand loosely prevails and so sets the value or price of a certain article. However, at best, this is widely variable and most swaps are made on individual needs. It is necessary only to own two or more genuine pieces of gear, older than 25 years, to be welcomed into the ranks.

It is to the credit of "bower bird freaks" that most play the game honestly and will help any beginner to get started. However, in every activity there are con men — those who are prepared to pass off a bitzer as a pedigree pup. Box numbers under non-de-plumes, offering plums for sale, should be treated with caution. Most are OK but it is the favourite ploy of the fly-by-night operators. So, Caveat Emptor! (Let the buyer beware!)

The cardinal sin in the business is to drape up some piece of equipment and pass it off as genuine putting a modern chassis into an antique cabinet is the most common lark. Another gross error is crude or bad restoration work. At its worst, it can render a valuable article fit for the scrap heap. This is the one area where the old cliché really does apply, "If it's worth doing, do it well". Of course there are tricks in every trade. Two in common use are inserting tiny AFTs into old ones that are U/S and doing it kewise with valves or tubes. These modifications can be regarded as legitimate or bastard, depending on the availability, or otherwise, of the parts in question.



Harold Burtoft VK2AAH at work in his museum restoring an early battery B/Cast wireless of the 1920s. Harold's large museum was recently shown on TV. It includes old Phonographs and other unusual instruments, besides the many and varied pieces of valuable wireless gear. The museum is open for inspection by appointment only. See story inside.

Photo by courtesy of A. Shawsmitth VK4SS.

The destruction of so many valuable pieces from our early heritage is sad. To the uninitiated, treasure soon becomes trash and is disposed of to the junk room downstairs, to the garage, or to the out-house. There, it may be stripped piece by piece, or simply gathers dust, finally, maybe after many years, its remains are consigned to the city dump. There is a continual loss in this way. The bulk of equipment produced pre-WWII is now on the seabed, or under the sod — and what's left on top already seems to be spread thinly indeed. Many pieces deserve a better fate than a common or unknown graveyard, they would enhance even the most elegant room or shack.

Henry Ford was known to enjoy chopping his own firewood because, he said, "This way it warms me twice". (He is also reported to have said "History is bunk".) Collectors do even better, for they are thrice rewarded — the finding, restoring and displaying is a threefold labour of love.

What makes a "bower bird freak"? This is a good question. There's a little of it in all of us — a hang-over from our primitive past, when it was imperative to hunt and hoard. The instinct still persists in a civilized form. What of the present upsurge of interest — is it just another passing fad or fancy: does affluence have some part in it? We can now afford certain indulgences, for the first time ever. Is it due to nostalgia and a craving for the familiar and possibly more secure past? Whatever the real reason, the genuine private collector serves his community well: his efforts and contributions have enhanced displays in museums the world over. ■

FREQUENCY PROGRAMMING FOR THE ICOM IC22S

This programme computes the diode layout for the Australian 50 kHz channelling 2 Mx band plan for the Icom IC22S, and gives an Australian version of the table normally published with the owners' handbook.

Copies of the original program written in FORTRAN IV, may be obtained from the author at the above address (please include SAE).

To program a particular frequency, insert digits in positions indicated by the figure 1.

Bruce Riley VK3ZSR
15 Salisbury Street, Wangaratta Vic. 3677

In Duplex A mode, receive is 800 kHz higher.

In Duplex B mode, transmit is 600 kHz higher.

N, centre column, is the decimal equivalent of the binary number which is set into the diode matrix. ■

FREQUENCY MHz	N	BINARY MATRIX 31 30 29 28 27 26 25 24 23 22									
144.45	2	0	0	0	0	0	0	0	0	0	0
144.50	4	0	0	0	0	0	0	0	0	0	0
144.55	6	0	0	0	0	0	0	0	0	0	0
144.60	8	0	0	0	0	0	0	0	0	0	0
144.65	10	0	0	0	0	0	0	0	0	0	0
144.70	12	0	0	0	0	0	0	0	0	0	0
144.75	14	0	0	0	0	0	0	0	0	0	0
144.80	16	0	0	0	0	0	0	0	0	0	0
144.85	18	0	0	0	0	0	0	0	0	0	0
144.90	20	0	0	0	0	0	0	0	0	0	0
144.95	22	0	0	0	0	0	0	0	0	0	0
145.00	24	0	0	0	0	0	0	0	0	0	0
145.05	26	0	0	0	0	0	0	0	0	0	0
145.10	28	0	0	0	0	0	0	0	0	0	0
145.15	30	0	0	0	0	0	0	0	0	0	0
145.20	32	0	0	0	0	0	0	0	0	0	0
145.25	34	0	0	0	0	0	0	0	0	0	0
145.30	36	0	0	0	0	0	0	0	0	0	0
145.35	38	0	0	0	0	0	0	0	0	0	0
145.40	40	0	0	0	0	0	0	0	0	0	0
145.45	42	0	0	0	0	0	0	0	0	0	0
145.50	44	0	0	0	0	0	0	0	0	0	0
145.55	46	0	0	0	0	0	0	0	0	0	0

145.60	48	0	0	0	0	0	0	0	0	0	0
145.65	50	0	0	0	0	0	0	0	0	0	0
145.70	52	0	0	0	0	0	0	0	0	0	0
145.75	54	0	0	0	0	0	0	0	0	0	0
145.80	56	0	0	0	0	0	0	0	0	0	0
145.85	58	0	0	0	0	0	0	0	0	0	0
145.90	60	0	0	0	0	0	0	0	0	0	0
145.95	62	0	0	0	0	0	0	0	0	0	0
146.00	64	0	0	0	0	0	0	0	0	0	0
146.05	66	0	0	0	0	0	0	0	0	0	0
146.10	68	0	0	0	0	0	0	0	0	0	0
146.15	70	0	0	0	0	0	0	0	0	0	0
146.20	72	0	0	0	0	0	0	0	0	0	0
146.25	74	0	0	0	0	0	0	0	0	0	0
146.30	76	0	0	0	0	0	0	0	0	0	0
146.35	78	0	0	0	0	0	0	0	0	0	0
146.40	80	0	0	0	0	0	0	0	0	0	0
146.45	82	0	0	0	0	0	0	0	0	0	0
146.50	84	0	0	0	0	0	0	0	0	0	0
146.55	86	0	0	0	0	0	0	0	0	0	0
146.60	88	0	0	0	0	0	0	0	0	0	0
146.65	90	0	0	0	0	0	0	0	0	0	0
146.70	92	0	0	0	0	0	0	0	0	0	0
146.75	94	0	0	0	0	0	0	0	0	0	0

146.80	96	0	0	0	0	0	0	0	0	0	0
146.85	98	0	0	0	0	0	0	0	0	0	0
146.90	100	0	0	0	0	0	0	0	0	0	0
146.95	102	0	0	0	0	0	0	0	0	0	0
147.00	104	0	0	0	0	0	0	0	0	0	0
147.05	106	0	0	0	0	0	0	0	0	0	0
147.10	108	0	0	0	0	0	0	0	0	0	0
147.15	110	0	0	0	0	0	0	0	0	0	0
147.20	112	0	0	0	0	0	0	0	0	0	0
147.25	114	0	0	0	0	0	0	0	0	0	0
147.30	116	0	0	0	0	0	0	0	0	0	0
147.35	118	0	0	0	0	0	0	0	0	0	0
147.40	120	0	0	0	0	0	0	0	0	0	0
147.45	122	0	0	0	0	0	0	0	0	0	0
147.50	124	0	0	0	0	0	0	0	0	0	0
147.55	126	0	0	0	0	0	0	0	0	0	0
147.60	128	0	0	0	0	0	0	0	0	0	0
147.65	130	0	0	0	0	0	0	0	0	0	0
147.70	132	0	0	0	0	0	0	0	0	0	0
147.75	134	0	0	0	0	0	0	0	0	0	0
147.80	136	0	0	0	0	0	0	0	0	0	0
147.85	138	0	0	0	0	0	0	0	0	0	0
147.90	140	0	0	0	0	0	0	0	0	0	0
147.95	142	0	0	0	0	0	0	0	0	0	0
148.00	144	0	0	0	0	0	0	0	0	0	0

THE ONLY STATE OF THE ART 2M ALL-MODE TRANSCEIVER....



IC211
advanced
technology

144-148 MHz with VOX, CW monitor, ac-dc operation,
variable power control, FM-USB-LSB-CW.

PLUS ability for complete external keyboard frequency/
function control and microprocessor interface.



ICOM

MAKE THE COMPARISON AND SEE WHO HAS
THE WINNER ...

	ICOM IC-211	TRIO TS700S	Yaesu FT221R		ICOM IC-211	TRIO TS700S	Yaesu FT221R
• The most flexible tuning system on a 2 meter base station				• State-of-the-art electronics featuring LSI technology	Yes	No	No
— Fast flywheel tuning	Yes	No	No	• Large instantaneous digital Led readout (no waiting for counter update on QSY)	Yes	No	No
— Features 2 completely independent VFO systems built in with memory storage, standard at no extra cost	Yes	No	No	• Completely solidstate	Yes	Yes	Yes
— VFO style tuning with synthesized stability and accuracy	Yes	No	No	• AC/DC power supplies built in	Yes	Yes	Yes
— Programs virtually any repeater split (No extra crystals necessary)	Yes	No	No	• Separate discriminator and S meters	Yes	No	No
— High speed electronic tuning advance on SSB	Yes	No	No	• SWR bridge built in	Yes	No	No
— Switched AGC speed control on front panel	Yes	No	No	• Variable power output control on front panel	Yes	No	No
— Tuning knob locks electrically—no accidental frequency changes in mobile operation	Yes	No	No	• Fully broad banded over 4 MHz (no peaking/switching required over 4 MHz)	Yes	No	No
— RIT automatically releases on QSY	Yes	No	No	• Front panel dimmer switch	Yes	No	No
— Operates on FM, USB, LSB and CW	Yes	Yes	Yes				
— Capable of external keyboard frequency control	Yes	No	No				

Distributed by

VICOM

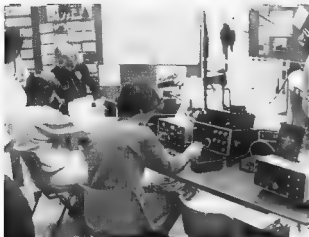
GROUP OF COMPANIES

139 AUBURN RD.
AUBURN VIC. 3123

PH. (03) 82 5398

Adelaide: 43 7981
Canberra: 82.3561
Perth: 446 3232
Brisbane: 38 4480
Gold Coast: 32 2644
Melbourne: 813.2355

SHOW TIME IN THE WEST — FROM PERTH



VK6 Division display in the Garden City Shopping Centre, Booragoon, October 1977, was a big success. The morse code section was voted a "must" for future displays. The display was a goer with Saturday morning visitors.

— Photos courtesy VK6NE

THE RON WILKINSON ACHIEVEMENT AWARD

As foreshadowed in WIA NEWS in December 1977 AR, a new WIA Award has been made possible through the generosity of Mrs. Mary Wilkinson, widow of the late Ron Wilkinson VK3AKC. Her donation of \$1,100 to fund this Award has been invested in Government Bonds so that the annual interest will meet the costs of the annual award insofar as this is possible.

The winners of the Award will be announced each year in the March issue of AR for the reason stated in the announcement below. The details of this Award were prepared by an Executive Sub-Committee composed of Mr. P. Wolfenden VK3ZPA/NIB, Executive Vice-Chairman, Mr. G. F. Scott VK3ZR, Education Co-ordinator, and Mr. B. Bathols VK3UV, Editor of AR. The recommendations of this Sub-Committee were approved by the Executive, slightly modified (award name) by Mrs. Wilkinson, and not disapproved by the Divisions.

The joint winners of this Award for 1977 as selected by the Executive are Wally

Green VK6WG of Albany and Reg Galle VK5QR of Enfield, South Australia, for their 1296 MHz record-breaking contact as reported in AR for March 1977.

DETAILS OF THE RON WILKINSON ACHIEVEMENT AWARD

1. NAME: THE RON WILKINSON ACHIEVEMENT AWARD.

2. FREQUENCY OF AWARD:

The Award is to be made annually during the month of March — nominal date 3rd March and relates to the previous calendar year insofar as this is practicable.

3. REASON FOR AWARD:

The Award is for special achievement in any facet of amateur radio. The following examples illustrate the level of achievement which will be taken into consideration in making the Award— Outstanding communication achievement.

Article for Amateur Radio Magazine.

Holder of Australian DXCC.

Development of state of the art techniques.

Involvement in Institute affairs.

Microwave activity.

Involvement in WICEN, Education Clubs or similar.

Achievement in using amateur satellites.

Notable Public Service.

These are only examples. As can be seen the Award is extended to cover the whole gamut of amateur radio activities.

Left: Reg VK5QR adjusting 2304 MHz dish.

Below Left: VK5QR in his shack.

Below Right: Presentation of certificate to Reg by VK5 Div. Pres., Colin Hurst VK5HI.

Photos by Christine M. Mahony.

4. THE AWARD:

The Award is to be funded from the interest from the donation by Mrs. Wilkinson, supplemented from Institute funds if required.

The Award is made up of —

2. \$50 cash.

1. A certificate.

3. Books from "Magpubs" to the value of \$50.

4. WIA subscription paid for 1 year.

In the event of a joint Award, then each party will receive —

1. A certificate

2. WIA subscription for 1 year.

3. A proportionate amount of cash and books from "Magpubs".

5. METHOD OF SELECTION:

1. The Award will only be available to amateurs from VK call areas.

2. Preference will be given to WIA members.

3. Individual amateurs may nominate or make a personal application to the President of their Division by 31st October each year.

4. The President of the Division is then to forward the most meritorious applications/nominations to the Executive by 30th November, only after satisfying himself that the applications/nominations are worthy of consideration.

5. The Executive will nominate the recipient of the Award by 31st January, subject to Federal Council agreement if considered necessary.

6. The Award will be announced in Amateur Radio for March. The nominal Award date is 3rd March each year — the birthday of the late Ron Wilkinson VK3AKC.

7. In the event of no nominations forthcoming, the Executive may select a recipient ("may not shall").

CERTIFICATE

This is being designed and prepared. A condition is that it will contain a list of all nominees year by year. A facsimile will be published as early as possible. ■



WICEN EXERCISE— RED CROSS MURRAY RIVER CANOE MARATHON

Between Christmas and New Year a canoe race is run between Yarrowonga and Swan Hill. The event is run by the Red Cross and the canoeists have to paddle 400 km over five days.

Since December 1972 the essential safety communications have been provided by a team of Amateurs operating a WICEN net. The net consists of a portable control station with other portable and mobile stations which moves down the river keeping up with the canoe race.

The race is organised by the Victorian Division of Red Cross and the WICEN group from Victoria provide the operators for the WICEN net.

For the December 1977 race 30 Amateurs took part and provided a self-contained HF and VHF control station, VK3AWI, as well as four portable HF and VHF stations at control points along the river. Mobile stations with both HF and VHF were used to provide mobile relay stations for VHF mobiles temporarily installed on power boats. These power boats provide assistance to canoeists on the river and require communications to arrange first aid and evacuation of canoeists.

The team of operators arrived in Yarrowonga on Boxing Day; mostly without incident except for Kevin VK3AUQ, who found that Subaru don't run too well on mixed oil and water.

The weather is usually fine and hot but on the first day there was light rain and a stiff breeze. The conditions prompted John VK3ZCX to don his trusty overcoat

and some wit dubbed him "The Flasher", which stuck for the duration.

On the final day Morrie VK3BMD, inspired no doubt by the amber fluid, took to the water with one of the organisers and paddled a canoe called Fosters. A pretty good effort as they paddled the full 76 km for the day.

The marathon winds up with a barbecue on New Year's Eve in Swan Hill and a good time is had by all as they unwind.

Those taking part in the 1977 marathon included VK2AGO, VK3s AAE, AED, AEJ, ANX, NFY, ALX, AUJ, AUQ, AVJ, AYL, CCT, BGM, BJM, BMD, BER and BIR and family, NB, ZCX, ZIM, ZIW, YBS, YCQ, YJE, YJM, NDD, ZJS.

An enjoyable time was had by all taking part. If you would like to take part in the next marathon John Payne VK3AED would be pleased to help you. He may be contacted via the Victorian Division Rooms at 412 Brunswick Street, Fitzroy.

VK3AUI.



VK3AUI installed in safety boat RAJ II.



River bank check point, VK3AAE/VK3YJM.



Safety patrol boats, VK3AUQ in boat.



Peter VK3ANX and Martin VK3YJM manning a check point.

ATV NEWS

KEVIN CALLAGHAN VK3ZVJ
PETER COSSINS VK3BFG

The British Amateur Television Club is currently celebrating the 100th edition of CQ-TV by introducing a new award for transmitting and receiving fast scan high definition television. The following is an extract from CQ-TV, November 1977.

THE CQ-TV AWARD Transmitting Award

For pictures transmitted which have been successfully identified by another station, claim 2 points per kilometre. If the contact becomes a successful 2-way exchange of pictures the 10 bonus points may be claimed by each station regardless of distance. Careful logging of transmissions is essential.

Receiving Award

For any picture positively identified, claim 2 points per kilometre. If any contacts are on 23 cm or above, the points should be doubled.

The award is divided into 3 grades —
Bronze 1,000 points.
Silver 5,000 points.
Gold 10,000 points.

A station may be worked only once per day, commencing 1st November, 1977.

Certificates are available for this award and may be upgraded with silver and gold awards.

Applications, including return postage and log details, complete with call sign, date of QSO, band, location of station worked and points claimed, contacts made other than from the home station to be clearly marked, should be made to —

John L. Wood G3YQC,
54 Elkington Road, Welvertoft,
Northampton, NN67LU.

QSL cards are not required but logs should be checked and signed by one other licensed amateur.

Note that VK3s would qualify for a bronze award for 2 contacts to VK7EM and that Winston (or any other VK7) could notch up a gold in a couple of good nights. It would be nice to show the Gs how it is done.

Ian VK3ALZ has kindly furnished me with an updated version of his cathode modulator. The new model is much improved and includes sub-carrier audio. I will provide complete details of this in a later edition of AR.

Activity on 1296 MHz is on the increase in Melbourne. Les VK3ZBJ, Ian VK3ATY, Ron VK3AHJ, Ian VK3ALZ are already transmitting and receiving pictures with a number of other stations in the planning stages. Edition 4 1977 VHF Communications has an article on a solid state transmitter for 1296 that would be ideal for stations with IF modulated television transmitters. The unit is rated at about 200

milliwatts in television service and would be a good exciter to get you on the band.

On Monday evening, the 30th of January, the monumental television contact of the decade occurred in Melbourne. VK3ZVJ initiated a transmission on 426.25 MHz. This transmission was received at VK3ZBJ and re-transmitted on 1290.25 MHz. VK3ZBJ's transmission was received at VK3AHJ, who re-transmitted the signal to VK3ATY on 581.6 MHz. VK3ATY then re-transmitted the signal on 1290.25 MHz. Unfortunately VK3ZVJ had no receiving equipment to close the loop.

TECHNICAL CORRESPONDENCE

The Editor,

Dear Sir,

Please note that the postscript on page 13, January 1978 AR, is erroneous (the \$50 part).

I was misquoted, and I wish to apologize to Norm Wilson VK4NP for any inconveniences this may cause.

FURTHER: A minor misprint was that the 5058 stores 1024 8 bit words. This should be 1024 bits.

Also any number of 5058s can be added one after the other to expand the storage capacity.

H. G. Kociemski VK2B1T.



GFS
ELECTRONIC
IMPORTS



GET THE BEST FOR LESS FROM GFS



GFS
ELECTRONIC
IMPORTS

**GREG WHITER
VK3CA**

LOOK AT THESE PRICES AND COMPARE!

FT 1218	160 Wm x 120W Top	8829
FT 201	160 120W x 250W	8881
FT 3015	160 120W x 250W	8824
FT 7	60 10W x 25W	5946
FT 2405	120 10W x 25W	5889
FL 21028	82 10W x 25W	5529
FL 110	10W x 25W	5225
PRG 7	10W x 25W	5219
YO 301	10W x 25W	5396
YO 100	10W x 25W	5253
YO 150	10W x 25W	5384
YO 201	10W x 25W	5359

EMOTATORS ROTATORS

MODEL 842CX Heavy duty:
Rotation torque 600 Kg/cm
Break torque 4000 Kg/cm
Only \$196.

MODEL 1102MX Extra Heavy Duty:
Rotation torque 800 Kg/cm
Break torque 10,000 Kg/cm
GFS Price only \$309.

**OUTSTANDING NEW MINI TRANSCEIVER FROM
YAESU MUSEN**

FT 7

FEATURES:
Modern compact styling for
any under-dash mounting.
Size 235mm x 80mm x 290mm.
80 to 10 metre operation.
VFO controlled.
Power Banker that really works.
Facilities for fixed channel operation.
Ideal for the shack or the mobile at a price that you can afford.
Only \$548 including mobile mount, microphone and cables.

AVAILABLE AT GFS.

ACCESSORIES FROM GFS

FS-101 HF in low power and SWR meter, 3 ranges, 0-200, 2000, 1000W — \$49

GYR 24 24 Hour World Clock \$31.

50 P/B low loss double shielded foam coaxial cable 2 dB loss per 100 ft at 100MHz \$129 per metre.

LP-33 low pass filter 50W power capacity by ideal for reverse use \$8.50.

VS-150 min. mic compressor 45dB of compression \$25.

MC 301 Katsun mic compressor \$45.

SWR 18 SWR18dB strength meter 3.5 to 150MHz \$25.50.

PS-302 VHF — vcc power and SWR meter, 50-100MHz \$58.

HIDAKA MODEL VS-22
10 and 15 metre dual-band
3 element vhf. Our price \$158

FL 2100u

WHY PAY MORE ? *

GFS GREG AND FRED'S SERVICE

MANY YEARS OF EXPERIENCE IN THE AMATEUR RADIO AND COMMUNICATIONS SERVICE INDUSTRY PROVIDES US WITH THE BACKGROUND AND KNOWLEDGE TO OFFER YOU THE BEST IN SERVICE AND OUR \$3.50 PER HOUR SERVICE RATES ARE VERY HARD TO BEAT. 30 DAY TRY MONEY

**NEW! COMBINATION FREQUENCY COUNTER
AND SIGNAL GENERATOR DX 555D**

Featuring a 220 MHz counter upper limit and 30 MHz generator upper limit.

Generator frequency is read directly on the counter.

A MUST FOR EVERY

3269

DX 555 same as DX 555D but with 30MHz counter.

Only \$170

freight and insurance extra

Prices include Sales Tax

90 DAY LIMITED WARRANTY APPLIES TO ALL EQUIPMENT BUT DOES NOT COVER FINAL TUNES OR SEMI-CONDUCTORS

PRICES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

G.F.S. ELECTRONIC IMPORTS 15 MICHON ROAD, MICHAM, VIC 3011

AMATEUR SATELLITES

Bob Arnold

VK3ZBB

As mentioned last month Charlie VK3ACR is now maintaining a weekly liaison with Harry JA1AHG, and his contacts have already proved valuable to Dave Hull VK3ZDH operator of the Melbourne command station.

Harry writes "Season's Greetings to All. Welcome to you Charlie VK3ACR. Our thanks go to Dave VK3ZDH for making the introduction. Now that we have a link with Melbourne, we feel more secure than before. David is responsible for Project Australia of AOS fame, also he runs the telecommand station in Melbourne. Needless to mention, without his unselfish telecommand activities AOS would never have 'lived' so long".

"He will be commanding AOS for us as soon as AOS becomes AOS. Although details have not been announced by AMSAT yet, it looks like AOS will be operated in Mode A during the week and in Mode J over the week-ends and I am sure David will be kept busy in telecommand chores in conjunction with other command stations such as VESAT and G3YJO. Thanks, David, for your hard work".

Harry's letter gives us a further update on AOS. It will be launched at 1730-1800Z aboard a Delta rocket together with LANDSAT-C and NASA's PIX satellites. Further orbital details were given in AR November 1977.

I hope all VK3ZDH operators will have received news via Divisional broadcasts of the new operating schedules for AOS.

Effective 1st January, 1978, the sequence is BBA BBA —, this is detailed in the orbital

data attached. While on orbital data, my apologies for errors in the February predictions — I know my maths are weak, now I know I cannot read a calculator correctly!

JAMSAT has a 28 MHz pre amp available in kit form or "wired and tested". The unit uses one MOSFET and operates on a 9 volt battery. The price of the kit is \$US6.00 (for other currency equivalent) post paid airmail. Please write to JAMSAT, P.O. Box 117, Tokyo Central Post Office, Tokyo, 100-81, Japan, for a section of JRGWS.

A second book on OSCAR has recently been published. This is entitled "Getting to Know OSCAR from the Ground Up" and is available from ARRL, Newington, CT 06111, USA, at \$US3.00 and also from The Technical Book Shop in Melbourne at a much higher price.

The book consolidates a series of articles which have appeared in QST and covers virtually every topic one needs to know about the present and future satellites launched under the auspices of AMSAT.

As the various chapters in the book were originally published as articles in separate editions of QST, there is inevitably some repetition but this does not detract from the general usefulness of the publication. In fact, it tends to reinforce important topics which may otherwise be missed.

The sections on "Finding OSCAR" and "How to Use OSCAR 7 Mode B" are clearly written and the whole book is well illustrated with drawings and photographs.

A particular section refers to "The OSCARATOR", and a coloured map is available to assist in predicting OSCAR orbits. Unfortunately, this map is for the Northern hemisphere and is of little use to operators in Australia but the same methods adopted for locating OSCAR in the North are applicable to the Southern hemisphere if one is able to obtain a suitable map centred on the South Pole.

In my review of last month of the German publication, I mentioned the absence of practical information on antennas, these are more comprehensively covered in the ARRL book and the photographs clearly illustrate the types of installation which can be constructed using conventional rotators and relatively simple Yagi antennas.

Although Australian amateurs have not been in a position to listen to or use educational and

experimental programmes conducted through the OSCAR series of satellites, there is a chapter on this subject which clearly illustrates what has been done by those who have been involved in this type of presentation. Many amateurs are interested in the Phase 3 satellite which, through its elliptical orbit, will give much greater coverage than the series to date and some detail on the Phase 3 satellite, together with a diagrammatic representation of the on-board equipment, is included.

An index is provided and this will be handy for those who may have already read articles in QST magazine. A most useful book for those interested in the use of OSCAR 7 and subsequent satellites.

OSCAR SATELLITE STATISTICS

These statistics taken from the AMSAT news letter compare the first six OSCAR series and the Phase 3 spacecraft with one another. It can be seen that the spacecraft grow in complexity as the state of the art advanced.

An interesting factor is the "plateau" that shows up during the phaseover from Project OSCAR to AMSAT between OSCAR 4, Australia-OSCAR 5, and AMSAT-OSCAR 6.

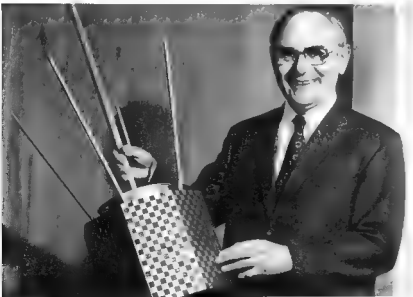
OSCAR 7 PREDICTIONS

MARCH 1978

Date	Mode	Orbit No.	Time Z	Long
01	A	15050	00.23	81
02	B	15053	01.17	78
03	B	15055	02.16	80
04	A	15058	01.10	74
05	B	15100	00.10	89
06	B	15113	01.04	73
07	A	15125	00.03	87
08	B	15138	00.58	71
09	B	15151	01.52	85
10	A	15163	00.51	89
11	B	15176	01.46	83
12	B	15188	00.45	86
13	A	15201	01.39	81
14	B	15213	00.39	88
15	B	15226	01.32	85
16	A	15238	00.32	85
17	B	15251	01.27	78
18	B	15263	00.28	83
19	A	15276	01.30	77
20	B	15288	00.29	82
21	B	15301	01.14	75
22	A	15313	00.13	80
23	B	15326	01.07	74
24	B	15338	00.07	88
25	A	15351	01.01	72
26	B	15363	00.01	87
27	B	15376	00.56	70
28	A	15389	01.49	84
29	B	15401	00.48	89
30	B	15413	01.43	83
31	A	15426	00.42	87

APRIL 1978

Date	Mode	Orbit No.	Time Z	Long
01	B	15439	01.36	81
02	B	15451	00.36	88
03	A	15464	01.30	78
04	B	15476	00.29	84
05	B	15489	01.24	78
06	A	15501	00.23	83
07	B	15514	01.17	78
08	B	15526	00.17	81
09	A	15539	01.11	75
10	B	15551	00.10	58
11	B	15564	01.05	73
12	A	15576	00.04	58
13	B	15589	00.58	71
14	B	15602	01.52	85
15	A	15614	00.52	70
16	B	15627	01.45	84
17	B	15639	00.45	88
18	A	15652	01.40	82
19	B	15664	00.39	87
20	B	15677	01.33	80
21	A	15689	00.33	85
22	B	15702	01.27	79
23	B	15714	00.26	64
24	A	15727	01.21	77
25	B	15739	00.20	82
26	B	15752	01.14	76
27	A	15764	00.14	61
28	B	15777	01.08	74
29	B	15789	00.07	69
30	A	15802	01.01	73



Bob Arnold VK3ZBB with his half scale model of Oscar 7.

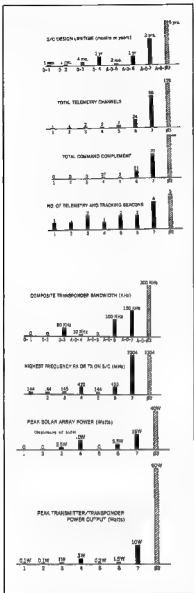


FIG. 1. (Courtesy AMSAT Newsletter.)

DO'S AND DON'TS FOR SATELLITE USERS

(By courtesy of AMSAT Newsletter)

Don't turn on your carrier, while, send CW or otherwise UNTIL you can hear the satellite as evidenced by the beacon if you have a poor downlink and a good to link as the vast majority of European users have, the chances are that you will be talking to someone's DX QSO who can hear you and how!

Don't run more than 100W e.p.p. at any time, you will push out those who are paying the game, and give them grounds for responsible operating also.

Don't call that rare DX station you have already worked if others are calling him, or you will be preventing them having a chance.

Don't call stations in your own area at horizon times, as they have but a few seconds daily in which to work the distant ones, but most of any orbit to work you.

Don't call CQ incessantly. A short burst is quite enough, then listen, otherwise you are depressing AGC and using up battery power unnecessarily. Many of the rare ones are crystal controlled, and you will need to listen for them, and they won't get in any way if everyone is transmitting.

Don't transmit SSB in the lower half of the satellite band segment, nor CW in the upper, or you will upset the common mode operating scheme. Also, keep 5 kHz clear of the beacon frequencies.

Don't transmit off schedule, nor on any Wednesday, unless you have specific permission to do so, otherwise you will be wrecking others' attempts at valuable work.

Do be aware of the other guy's horizon, as he may be trying to get those on the limit.

Do pay maximum attention to your receiving system, as when it is good enough you will hear returns from even 100 mW e.p.p. Mode B uplinks, and hence work a lot more DX, and run less power yourself! Attention to higher gain, lower angle and less noise on your downlink is cheaper and far more productive than anything else you can do.

Do tell other stations who are not qualifying for the above conditions, 80 times if necessary, as they will not cease their bad practice unless they are helped to realize that it is unethical!

Do listen attentively on the frequency that you are considering using, until you are sure that another station is not already there.

Do use the outer limits of the passband, thus avoiding the already overcrowded centre, and encouraging others to spread out, too, to avoid unnecessary QRX.

Do listen to codetone, bulletin, news items and the nets, and benefit by applying the updated operational information heard.

Do keep clear of specific frequencies where rare or weak ones are known to be, and do not sit there and call CQ hopelessly, listen instead.

Do move off a frequency where you have answered a CQ or a call, as it is the original caller's frequency, and he may be crystal controlled.

Do let people know if you are crystal controlled by adding "GC" or "Xtal" with your call, so that they can comply with the above.

Do try to be patient enough to listen for and work the weak ones, as it is possibly their first OSCAR QSO.

Finally, do try to have meaningful QSOs via OSCAR, e.g. by spreading the word on new stations, schedules, and items of common interest, rather than merely exchanging a few numbers. Names and QTHs are a common currency on all amateur QSOs, so why not on OSCAR?

DIVISIONAL NOTES

MODERN CONDENSED VERSION

VK2

Welcome to Divisional Notes in AR. Greetings to other States from VK2.

VK2 members are reminded that the 1977-78 Annual General Meeting is on Friday, 31st March, 1978, at the registered office, 14 Archibald Street, Crows Nest, N.S.W. from 20.15 h. Further details in the Minibulletin.

Easter time is Unigue time - check with Amateurs on the VK2 North Coast for details. Further information via broadcasts.

Work has been under way since late last year to re-establish the transmission of the Division's morning broadcast (11 a.m. Sunday) from our Rural site - VK2W1. For some time VK2AW1 Crows Nest - has been used for HF transmissions with poor results. As equipment is obtained and installed most of our HF transmissions will migrate from VK2W1. The programme will continue to originate from VK2AW1.

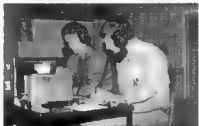
The Division now conducts a RTTY broadcast on HF bands in addition to the present voice session. VK2RTTY, Frequencies (some or all) 80 m 3545 Transmission time 0030 GMT Sunday Call sign KHz, 40 m 7045 or 20 - 14090; Duration 15 hours. Transmission times various members of the RTTY group. For communication with the VK2 RTTY Group write to: RTTY Secretary, C/- 14

Archibald Street, Crows Nest 2065. The Federal RTTY Committee is also in VK2 Chairman, Charlie VK2BXK, address as above 73 de VK2ZTM

VK3

A trial Novice exam is to be held Saturday, 15th April, at a centre location in Melbourne to be advised to applicants in addition to the time.

The trial exam in 1977 and this one are intended to improve the degree of preparation of candidates for the official exam in May. In the 1977 series the pass rate for those who entered for the trial exam was about 10% to the average Novice pass rate. Many candidates said they would not have passed the official exam if they had not first sat for the trial exam because of decreased nervous tension (especially in the Morse) specific preparation for many question types and advance familiarity with the routines in use.



More sending test in progress. (Gwynne Scott VK3ZNR), one of the Morse examiners.

In the first exam the answer papers are returned to candidates after being marked, thus helping to pinpoint weaknesses.

Send your full name address and telephone number, plus \$1.00 postal order or cheque (made out to VRCS) to VRCS Trial Novice Exam, 11 Vista Avenue, New 3101. First come first served.

QSP

WANTED

Members willing to put something back into their hobby. Come forward and get involved with your Division's Council and its various committees, or at the very least support, promote and publicise the WFA on the air and at your local Club meetings. Don't forget that WARC 1979 is now only one year away.

JACK NUM

All the QTs will know GBLM, contributor for many years to amateur radio and RSGB activities. Bob Arnold VK3ZBZ was in the UK late last year and sent in a cutting from the Leslie Marbury of 29th October containing an article describing Jack's activities during the 50 years he had been licensed and a local contact mark the occasion "Uncle Mike" is a Vice-President of the RSGB and is still active on the air and a very keen VHF-UHF Microwave user.

TURKISH QSLs

A letter of 10th January from the Turkish Amateur Radio Society (TRAC) QSL Manager Halil Yektin TAYIY, advises that many QSL cards arrive for unknown calls at the QSL Bureau, PO Box 809 Karakoy Istanbul. He later listed the present known active stations as TAYIY and TAYIYA (TA being European Turkey) and TAYIHA (TA being Turkey). A list of past and sporadically active stations was enclosed with that letter and has been copied to VK QSL Managers.

WPX

What does this mean? Worked Prefixes! A CQ Magazine Award (see CQ May 1978) for rules based on collecting contacts with as many different prefixes as possible. Thus, VK2 is one prefix, VK3 another, VK8 another JA another and so on. The WPX Honour Roll published in Dec 77 CQ lists only on VK HE a VK3AOH in a score of 809 prefixes confirmed in the CW section top score in this section a 1312 prefixes. 1443 in the SSB section and 1073 in the mixed section. Incidentally, the only ZL in the Honour Roll is ZL3NS, scoring 874 in the SSB section.

ANDREWS COMMUNICATIONS SYSTEMS

(02) 349 5792



TS-520S KENWOOD

(Digital display optional extra)

\$700
with MC10 m.c.



\$859



AUTHORISED KENWOOD DISTRIBUTOR

SHOP 7, GARDEN STREET, MAROUBRA JUNCTION, N.S.W. (near Cnr Maroubra Rd)
P.O. BOX 33, KENSINGTON, 2033, N.S.W.

Prices subject to change without notice

★ NO DEPOSIT AND 10% DEPOSIT FINANCE
AVAILABLE TO APPROVED CLIENTS

BANKCARD WELCOME

TO COMPLEMENT OUR USUAL RANGE OF CRYSTALS

BRIGHT STAR CRYSTALS PTY. LTD.

35 EILEEN ROAD, CLAYTON VIC., 3168 Phone 546-5076 (Area Code 03)

CAN SUPPLY A RANGE OF —



- OSCILLATORS
- WIDE-BAND AMPLIFIERS
- TTL & CMOS
DECADE COUNTERS
- ELECTRONIC CRYSTAL
OVENS

INTERSTATE AGENTS

Adelaide ROGERS ELECTRONICS — Phone 42 6666
Brisbane FRED HOE & SONS PTY LTD Phone 47 4311
Perth COMMUNICATION SYSTEMS — Phone 76 2566
Hobart DIAMOND INSTRUMENTS — Phone 47 9077

All Mail to be addressed to: P.O. BOX 42, SPRINGVALE, 3171

BUYING WHOLESALE?

Keep us in mind when you call for quotes. It can pay to talk to us because we care and we are also stockists of a wide range of components and materials

ELECTRONIC (Distributors)

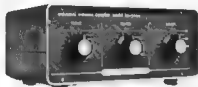
(Wholesale Division of
Electronic Enthusiasts Emporium)

223 POST OFFICE ARCADE
JOYCE STREET
PENDLE HILL, N.S.W. 2145
TEL. (02) 636 6222

Universal antenna couplers

Extremely important, especially with modern all-solid state transceivers, is the maintenance of a very low SWR to avoid destruction of costly high-power P.A. transistors. An antenna coupler enables precise adjustment with almost any antenna.

HC 500A — 160-10m, up to 500w pep \$119



(also available — not illustrated)

HC 2500 — 160-10m, up to 2.5kw pep \$256

HC 500 — 80-10m, up to 500w pep \$112

HC 250 — 80-10m, up to 200w pep \$92

KW E-ZEE Match — 80-10m, up to 400w pep \$109

FC 301 Yeezu — 160-10m, up to 500w pep \$195

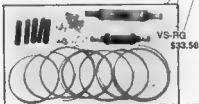
SWR AND POWER METERS

VHF ANTENNAS

HF MONOBANDERS

HF DUO BAND

HF TRIBAND BEAMS



\$115.00

HIDAKA'S VS-41/80KR for 10 thru 80 Meters

- An Individually Tuned High-Q Trap for Each Band
- Takes Full Power
- Rugged Total Performance Construction
- Easily Installed Using Minimum Space

Now... a modestly priced easily erected all-band vertical that delivers outstanding omni-directional performance on each band. HIDAKA'S Model VS-41/80KR. It is ruggedly constructed of heavy gauge, taper-swaged aluminium... uses four separately tuned High-Q air d-electric traps... each trap factory tuned to provide maximum performance 80 through 10 meters. Uncompromised performance for short haul or DX communication is ensured by the low angle radiation pattern developed by the VS-41/80KR. SWR is 2:1 or less on all bands. If mounted in an elevated position a radial wire system should be used. An accessory TRAPPED radial wire kit is available, the Model VS-RG. The VS-41/80KR comes complete with Terelyne guying cord.

TECHNICAL DATA

Power Rating 1 kw AM, 2 kw SSB
Feed Line Required 50-70 ohm coax
Minimum Ground 8ft. Ground Rods
Required

Overall Height 28.4 ft.

ANTENNA ACCESSORIES

LA-1, Lightning Arrestor, for installation in standard 52 or 72 co-axial feedline, designed to Mil specs ..	\$78.00
LA-2 smaller size co-ax arrestor ..	\$4.95
BN-86, ferrite Balun, 2 kW, for Beams and Doublets ..	\$30.00
VS-BN ferrite Balun 2 kW for Beams and Doublets ..	\$26.00
BA-1 ferrite Balun 2 kW 1, 1, light weight ..	\$22.00
HN31 Dummy Load Cantenna Kit 1 kW oil cooled (oil not included) ..	\$45.00
FF-50DX Low Pass Filter 3 Section, 1 kW ..	\$39.00
LP-7 TVI Filter low power ..	\$14.00
KW Electronics L.P. Filter, 5 Section, 1 kW ..	\$59.90
TV-3300 Drake L.P. Filter, 3 Section, 1.5 kW ..	\$39.00
TV-42 Drake L.P. Filter, 3 Section, 300 W ..	\$25.00
TV-476 Hy-Gain L.P. Filter, 150 W ..	\$19.00
TV-75 Drake High-pass filter ..	\$22.00
Porcelain Egg insulators ..	50 cents
WIDE RANGE of Co-axial cable and connectors in stock	
K-20 70 ohm Twin feeder ..	36 cents per yd.
Multi-band dipole traps centre insulator, 80-10m bands per pair complete with insulator KW\$36.00, Western	\$35.00
590 G & W co-ax switch, 5 posn. rear entry ..	\$39.90
CG 3, 3 position co-ax switch, side entry ..	\$12.00
KW 3 position co-ax switch, side entry ..	\$28.00

ASW-1, Western 5 position co-ax switch, side entry ..	\$33.00
RS-107 Transceiver tester ..	\$88.00
RS-501 Ant. Impedance bridge, inc. 1 osc. ..	\$72.00
Extra Osc. for RS-501 ..	\$16.00

ROTATORS

Emulator:	
103LBX Similar to CD-44 ..	\$148.00
502CXX Similar to Ham II ..	\$219.00
1102MXX Heavy duty ..	\$325.00
1211 Mast clamp for 103LBX ..	\$18.00
1213 Mast clamp for 502CXX ..	\$29.50
300 Mast Stay bearing for above ..	\$32.00
301 Tower top bearing ..	\$32.00
VCTF-7, 7 core cable (for 1100 series) ..	\$1.20 per m
VCTF-6, 6 core, for 102 & 501 ..	\$1.00 per m
1103MXX Extra Heavy Duty ..	\$339.00
1215 Mast clamp for 1102/3 ..	\$45.00
Flexible coupler ..	\$32.00

Prices and specifications subject to change without notice

JA57778-44

C.A.R.E.

(Community Amateur Radio Events)

TRIAL BY SEA

On December 24th, 1977, a 35 ft. Duncanson yacht left Sydney Harbour with seven people on board, bound for Lord Howe Island. About 48 hours later they were to find themselves in a dangerous and frightening situation 200 miles at sea, their sole means of shore communication on being with amateur radio stations in N.S.W.

The yacht 'Gandalf' was (and still is) a well found 35 ft. GRP yacht, fully equipped for long offshore races. She had just completed a racing season and with owner/skipper Don (VK2NFF) and a crew of four men and two women, was off for a holiday. Her usual ship-to-shore radio had been augmented for this trip by an Ailax 210X and skeds had been set up on 3.55 MHz with Ken (VK2BKE) on the sand and Eric (VK2NAV) in Sydney.

After two days hard sailing the yacht was 250 nautical miles along the track, was laying the island and moving well in heavy seas under reefed main and working jib. Skeds had been kept with VK2NAV and VK2BKE but contact had been lost with Sydney Radio.

On the evening sked on Boxing Day a message was received from the yacht that she had sprung a leak and was returning to Sydney. The tube carrying the rudder gland and bearing had broken away from the hull. Temporary repairs had been made but she was leaking badly and continuous hand pumping was required to control the water level. VK2NAV advised the Police and they in turn advised Sydney Radio. Messages to and from the yacht were maintained via the amateur net to Sydney Radio and on to Marine Ops. Canberra.

Within about 12 hours of the accident occurring Eric (VK2NAV) experienced bad CQW and contact was maintained through Alan (VK2NFO/P) who was hoisting at Pt Macquarie. The Hornsby Radio Club network was put into operation and maintained contact on 3.55 MHz until the morning of December 28, when it became necessary to move up the 80 to 147.35 MHz. Regular skeds were maintained on that frequency until p.m. on Wednesday 28th when the yacht was able to make contact again with Sydney Radio. For the last 24 hours or so VK2NFF on the yacht used CW due to microphone failure.

For a period of almost 48 hours — that is from p.m. on December 26th to p.m. on December 28th regular skeds were kept through the Amateur Radio network. This enabled the yacht to report its position, course and speed, and advise any deterioration in its situation due to weather, pump failure or further damage. Weather reports were passed back to the yacht and this enabled the crew to be prepared for any sudden change in the weather pattern. The value of this information was dramatically demonstrated during the night of 27/28 December. A strong southerly front was predicted — the same front that caused most of the fatalities in the Sydney-Hobart yacht race. The knowledge of its accurate prediction enabled the yacht to be prepared for the storm and no further damage occurred. However, it was not possible under such circumstances to make for Sydney and a course was set for Newcastle, where the yacht arrived during the morning of Thursday, December 29.

Extracts from Telex message from Hornsby District Amateur Radio Club to RFMD, Sydney, give a synopsis of the incident.

* Yesterday morning (27 December) notification was received from Police that a message had been received by an amateur radio operator (VK2NAV) concerning a vessel in water out to sea from Pt Macquarie. The amateur operator on board the vessel is VK2NFF. The vessel is GANDALF VJ5244. Contact with the ship was maintained by amateur radio due to problems with his gale's transceiver. The frequency used has been 3550-3555 kHz until this morning (28 December, when it became unworkable. Control station at the



Don Richards VK2NFF showing expertise on CW.

time (VK2DI) re-established contact with the ship on 7050 kHz. Regular skeds are being maintained on or about this frequency. The Hornsby Club Station (VK2APF) has been "activated" as the control station at this time. Other amateur stations are being allocated this task as required. Messages are being handled between the vessel and Marine Operations Centre via Sydney Radio's facilities as they are telephoned in by the amateur stations concerned. A local VHF net is also operating in Sydney on 147.25 MHz (primary) and on 147.35 MHz (secondary). This is for co-ordination purposes. . . . (vessel) managed to establish contact with Sydney Radio yesterday afternoon on maritime frequencies at about 0500Z. As such the amateur nets and skeds with him were

concluded at 0730Z (28 December), and all stations resumed normal operation, participating net stations in contact with VK2NFF during the entire operation were — VK2NFO/P, VK2NAV, VK2ANF/P, VK2AAB, VK2NOB, VK2NOA, VK2NBT, VK2NMF, VK2NAV, VK2APF, VK2APF/P.

Don VK2NFF has contacted most of the stations involved and has asked that he be passed to all stations concerned for their assistance and support. He also stated that many operators commented on the ability of CW to be read and understood under conditions when voice communication would have been time-consuming and possibly inaccurate. Alan, of course, following the microphone failure, communication would not have been possible without the use of CW.

From Don Richards VK2NFF

IARU NEWS

The main item of news this month is the overseas visit by the Federal President, David Wardlaw VK3ADW, during February to attend, by invitation, a meeting of the IARU International Working Group in Geneva.

This visit will enable those attending the IWG to see something of the large ITU Conference — in this case the Aeronautical Mobile Conference. This will be valuable for those who will be attending WARC '79, including David Wardlaw himself.

Using his same flight ticket, David Wardlaw will also visit the RSGB in London and Japan, Korea and Singapore on the return leg. Incidentally, it is reported that the number of licensed amateurs in Japan is now 465,000.

Some interesting VHF news comes in the Jan. 1978 issue of the IARU RI journal. The French 50 MHz beacon FK3VHF was heard twice in Eastern Canada by VE1ASJ during June 1977. A Canadian 50 MHz beacon VE1SIX is now reported to be operational. The sporadic E tests of FK3VHF were switched to TEP in August and the beacon signals were logged in October by ZL2IV some 8137 km to the South. The signals were also heard later by ZL1JJ. The FK3VHF beacon runs 70W RF into a stack of two 6 ft yagi arrays giving an ERP of 1 kW and the frequency is now 50.104 MHz (was 50.1 MHz).

The IARU RI VHF sporadic E propagation Coordinator is FKSH. He gave a talk on the subject on the occasion of the 50th anniversary of ARI (the Italian amateur radio society) as also did

Dr. J. Rotger, DJ3KR. Close collaboration is being maintained with CCIR Working Group 8 at it is thought that increased amateur participation in scientific studies such as VHF ionospheric propagation research will be one of the main assets in keeping our frequency allocations and in eventually getting new ones such as the 50 MHz band in Region 1 (and of course 50-52 MHz in Australia — to conform with the Region 3 Amateur allocation of 50-54 MHz).

Comments were that the 1977 Summer Season seems to have seen a record VHF sporadic E activity in the European area and generally around the world. Distances of 8500 km have been covered on 50 MHz between Japan and California.

Reports on these long distance contacts have steadily increased but it is not known whether this is due to the increased number of observers or to an increase in the activity of sporadic E itself. Possibly, both apply. More research, more observations and more reports are required to detect possible recurrence patterns and to relate these to other geographical or solar phenomena.

RECIPROCIITY — AUSTRIA

The fees, in Austrian Schillings, for a Class C (max. 100W) reciprocal licence in Austria are 120 for 1 month, 180 for 2 months, 180 for 3 months. Up to the end of October 1977 a total of 857 visitors' licences were issued in Austria — 755 were for DL calls, 1 VK and 3 G calls.

EME

KZUUV earned the world's first WAC for EME QSOs on 430 MHz (his VK contact was VK2AMV). Since then six others have done so, W1JR, SM5LE, PA0SSB, K3PPO, ISM5H and VE7BG3. Experiments

are now being carried out on the 1215 MHz band but although this band may turn out to be even better suited to EME QSOs activity is extremely low

10 Mx Band Beacons

From the same issue of the R1 Journal comes a list of 10m beacons which may prove interesting to those who are keen on 10 metre contacts

Frequency	Station	Remarks
2620.5	2J2BBB (Lusaka)	05.00-06.00Z 15.00-16.00Z
2620.5	D.O. G1	
2620.5	M4RO	Englewood, Fla.
2621.0	3B4MS	
2621.3	ZOG1	Gough Island
2621.6	GB55X	Saxess
2621.7	VK2W1	(planning)
2622.0	SB4CY	(planning)
2622.5	YU7	(planning)
2622.8	VK3TEN	Ottawa
2622.9	FX3TEN	(planning)
2623.0	ZL2M/H	Mt. Clinton
2623.2	VP8B	Falfield Is. (planning)
2623.6	VP8BA	(planning)
2623.7	LA7	
2624.0	PY1CK	Rio de Janeiro
2624.2	Z87	(planning)
2624.5	AX9XC	Bahrain
2624.7	EA2GIZ	Unofficial

460, 260, 265 and 27 in planning for W, VK5, VK6 and VK8

Also listed are 119 beacons in Region 1 on other bands — 2 on 70 MHz, 57 on 2 metres, 34 on

70 cm, 47 on 1296 MHz, 3 on 2304.5 MHz, 1 on 3456 MHz and 4 on 10.1 GHz

ODDSBETS

Sundry facts and pieces from Worldradio of Dec. 77. Ron WB1LC has worked over 100 countries on SSB, mainly on 20 and 80m bands, using a 1 watt, yee 1 watt, rig into a 4 el. 23m mono-bander and a simple 60m antenna.

Harry Dannahs W2HD, President of the ARRL, made these comments about WARC 79 in a Convention speech. "Our challenge is that we must make sure that amateur radio is held in high esteem. We must make sure that people know of our good works. It is necessary for us to tell our story. Don't hide what we do. Tell it loud and tell it often. The people of this nation should know of and have pride in Amateur Radio"

In that newspaper's Qx column is reproduced the Russian morse code and phonetics for those interested in copying Russian CW or SSB.

The list is like this

English letter	Russian phonetic
A	Alfa
B	Boris
C	Tsappya
D	Damiriz
E	Yelyens
F	Fyodr
G	Gregori
H	Khrizton
I	Ivan
J	Kratki

K	Konstantin
L	Leonid
M	Mikhail
N	Nikolai
O	Oleg
P	Pavel
Q	Shchuka
R	Raman
S	Semyon
T	Tetana
U	Ullana
V	V
W	Vasil
X	Zhak
Y	Eri
Z	Zenaida

The five additional CW letters in Russian are Dash Dash Dash D Chalyayev (Ch), four dashes — Shura (Sh), dot dot dash dot — Yuri (YU) and dot dash dot dash — Yakor (YA). For the SSB enthusiast the Russian numerals are given as 1 — Edinits, 2 — Dvoya, 3 — Troika 7 — Shchtyorka, 5 — Pyatka, 6 — Sheshtyorka 7 — Semyorka, 8 — Vosemyorka, 9 — Deyatka and Zero — Nol. Since we do not possess Cyrillic typesetting it is not possible to reproduce the 31 Russian letters but beware, many of them differ from the English.

NEW IARU MEMBER

ORARI, the Indonesian amateur radio society, has been elected as the 98th member society of IARU

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

The Editor,
Dear Sir,

WANTED KNOWN.

Would you like 15 miles to save yourself \$15? 572B/7180L are \$40 Tax Exempt in Melbourne, Sydney and Adelaide & 6U8C, 8K06 and 8146B are all 30-40 per cent cheaper than the current advertised price charged by Amateur Equipment Retailers. Free entrance credits monies and brings prices down to the true level. Write to VK3OT at PO Box 414, Hamilton, about these and other spares for amateur gear available for the asking from reputable supply houses in Australia

Using service, mateship and playing on your ignorance. Amateur Retailers are charging you anything from 40 to 100 per cent above the retail price you can pay for spares. As an amateur and experimenter you are allowed Tax relief on ALL spares used for transmitter purposes by a simple statement and your call sign on the bottom of the invoice.

The retail are you are dealing through no doubt get them for that price but add their exaggerated percentage to cover their costs

Get the trap. An FL2100b linear retails for \$510 in Sydney at present for a little known outlet. Here in Victoria it's now \$578, having just gone up by another 40-odd dollars.

Since 1978 when a similar device was \$400, they have gone up by \$178 which is nearly 50 per cent. Giving our rate of inflation and the devaluation at a maximum, the extra percentage shown, and every increase is passed along to the amateur nut without

stopping

It's about time we all jacked up and stopped buying from the locals for the reasons above.

[Retailers have to live, pay taxes, rent, power and the lot — caveat emptor is the name of the game.—Ed]

Royal Flying Doctor Service of Australia
(S.A. and N.T. Section) Inc.

The Editor, January 16th, 1978

Dear Sir,

May I refer to an article appearing under the heading C.A.R.E. in your January 1978 issue which described in rather dramatic style a fairly routine accident at Marla Bore. Stirring stuff indeed!

While it is not my intention to denigrate the assistance rendered by VK2IK I must take him to task for his insinuation of slackness on the part of the Royal Flying Doctor Service Base at Port Augusta suggested by his words that they were "just not on watch"

Perhaps a few facts may be of some interest to the amateur fraternity and also anyone contemplating travel in the more remote areas of the Outback.

1. Bases do not keep a continuous manned watch on assigned frequencies but conduct medical, telegram traffic and ancillary services such as School of the Air at scheduled times during the day on specific frequencies. Details of schedules would be obtained from the various Bases.

2. All Bases can be alerted 24 hours per day 7 days per week by the transmission of a suitably encoded SSB signal for a minimum period of 10 seconds. Usually different Day and Night alarm frequencies are used. The successful triggering of the Base decoder is indicated by the automatic transmission of a netting tone on the alarm channel and at the same time control of the Base equipment is extended to personnel on standby.

3. The various RFDS Bases throughout the Commonwealth provide communication for over 7,000 fixed and mobile Outposts. In general normal commercial operating procedures are used, including the international phonetic alphabet, upper-sideband SSB in universal. Some frequencies are shared by widely separated Bases and the 2020 MHz "netter" channel is common to all RFDS networks. Procedures are subject to strict regulation and frequently monitored by the Radio Branch, do not expect the operators to encourage rag-chewing.

Yours faithfully,
Graham Pitts VK50E, Technical Superintendent,
RFDS (S.A./N.T. Section) Inc.

P O Box 92,
Colac, Vic. 3259

The Editor,

2nd January, 1978

Dear Sir,
One reads with interest, and possibly some measure of amusement, the two letters submitted by Mr Leonard J Shaw as published in the January issue of AR.

The letter from VK4KU in the same issue provided a perfect countervailing viewpoint, and one trusts Mr Shaw has read it.

In his letter to the Editor, the above gentleman used the expression "like it or not" on four separate occasions, and this word, as a symbol, the whole approach of the CB movement. It is undeniable that thousands of people bought

and operated 27 MHz gear when it was completely illegal to do so. The travesty of Government which permitted the situation to go unchallenged is now expected meekly to comply with demands for the 27 MHz band in perpetuity. One hopes not: and the Radio Communications Act due to be brought forward this year is imperative, some measure of discipline may be restored to our use of the waves.

Mr Shaw asks whether Mr Yates "knew the difference between a 3rd harmonic and E major" during his early interest in Radio. Possibly he did not, but the tremendous difference is that Mr Yates had to demonstrate that he indeed did and know a great deal else also before he was issued with a licence and allowed to own and operate transmitting equipment.

Most of us appreciate that not all CBers are tarred with the same brush; and that amateur ranks may well be reinforced in future from among the more responsible CB enthusiasts. But from my own point of view, my observations to date strengthen my belief that 90 per cent of the CB operators belong to the same fraternity which causes most of the carnage on the roads; and who bring the same reckless and irresponsible approach to the CB operations. What does it matter to them that they cause the same TVI and other "interference"? What do they care for laws and regulations which don't suit their book? The answer is that they "couldn't care less" and therein is an answer to Mr Shaw when he suggests we "get off our backsides and help".

Any CBer who wishes may take the Novice exam and any of them seeking help to achieve this and would certainly obtain it

But it is unrealistic to expect help for people who consistently disregard the rights of others, who consistently breach the law, and who, all round, do not appreciate the fact that they are the only people who have made available to them a scarce and precious resource, name y space in the radio spectrum, without first having to submit to the discipline of study, and qualify themselves by examination.

Mr Gregorog has not mentioned the wide encouragement of illegality by some importers and retailers of equipment. It was they who orchestrated the whole cacophony in the first instance, by widespread advertising of CB equipment while its use was still illegal. Now, they embark on advertising designed to tempt the ignorant and irresponsible into further lawbreaking, which will ultimately bring CB into greater disrepute than they have already earned for it.

Mr Shaw avers that to refuse to accept such advertising breaches the law, and that it is the

task of Government to move towards prohibition.
Yet when the Government produces an RB34, some sources advise that its provisions should be ignored where they run counter to individual wishes.
You can't have it both ways.

D. C. Stalker VK3KJ

P. O. Box 81,
Albion, Qld 4010

The Editor,

18th January, 1978

Dear Sir,

I write drawing your attention to an error which appears in the footnote to an article on the subject of I K serial memory for RTTY by Henry VK4ZAP which appeared in January AR.

The material referred to in the note was available from me, but at a cost of \$5 not \$50. Only 50 coppers were printed and stock now exhausted, no re-print of the data is anticipated.

Norman Wilson VK4EP.

5 Kilburn Court,
Kewlyth, 3137

The Editor

18th January, 1978

Dear Sir,

I enclose hereto a letter which I have forwarded to the various persons listed below, and a copy is forwarded to you for possible attention by the Institute.

I feel that this is a deplorable situation that exists at present, and as stated in the letter, is encouraging 'Piracy' within the Amateur Bands. It is a matter which, I feel, may be of interest to, and worthy of attention by, the Institute.

Yours faithfully,

P. D. Greenham

Copies of attached letter forwarded to:—

- (i) Mr R. Grows, Superintendent of Postal and Telecommunications: Melbourne
- (ii) The Editor, 'Melbourne Age' newspaper
- (iii) Local Member of Federal Parliament
- (iv) Secretary WIA
- (v) The Editor 'Amateur Radio'

Dear Sir

'The Postal and Telecommunications Department has an examination twice yearly for 'Novice Amateurs'. This is a series of examinations covering Basic Radio theory (1 hour), Regulations regarding Amateur Radio (1½ hour) and the sending and receiving of Morse Code at a rate of 8 words per minute. After notification from the Department that one has passed the three examinations, one then applies for a Licence to operate an Amateur Radio Station.

I applied for the Examination in October 1977, and was notified of my success on 21/11/77. I applied (and paid for) my Licence to operate on 23/11/77 after personal attendance at the Department's office on that date. At that time I was informed that because of the workload imposed on the Department with Licensing of 'CB' radios, that a delay of four to six weeks would exist before the issue of my Licence.

On the 14th January 1978 I caused enquiries to be made at the Department, as no licence had been received and the following facts were explained to me:—

- (a) The Government cutting on Commonwealth Staff has depleted the actual staff at the Department
- (b) Overtime work by Departmental workers has been banned
- (c) That the workload of the Office Staff has been increased considerably since the Licensing of 'CB' Radio
- (d) Workload at the present time is overtaxing the Staff, and they are working as best they can under the circumstances
- (e) That the present delay in Amateur Licence issuing is 14 weeks

It appears to me unusual that the issue of an Amateur Licence or piece of paper with a Call sign can take fourteen weeks to be issued, to permit its way through the obvious 'handwritten' tape system of Government Departments when, from information received from New South Wales, many amateurs in that State received their

Licences before Christmas. That Victoria has a more hectic time with 'CB' and other duties than New South Wales seems to me to be ludicrous, to say the least.

Whilst I can (to a degree) appreciate the frustration of staff within the Postal and Telecommunications Department operating under a heavy workload, I wonder at the actions of the Government and indeed the Department in basically encouraging 'Piracy of the Air Waves' on the Amateur Bands, as has occurred on the Citizen Band Radio spectrum.

I now know the feeling of frustration and annoyance when, after attending Night School for six months to learn Radio Theory and sitting for, and passing, the required examinations to qualify for an Amateur Licence, then the purchasing of equipment with which to operate from, that all I can do is sit and look at it because of a red tape 14 week delay in Licence issue. A Shooter's Licence can be obtained immediately after a test and examination, so why the fourteen week delay for an Amateur Radio Licence?

Surely this situation is such that in time 'Piracy of the Amateur Radio Bands' will be second only to that seen on 'CB' today, with only 30 per cent of operators licensed. This matter must be brought to the Government and public notice in order that Staff can be supplied to the Department and, in fact, the Department itself in Victoria, made more efficient to complete the issue of licences in a period somewhat less than the present fourteen weeks.

P. D. Greenham

25 Berrille Road,
Beverly Hills, 2209

The Editor,

25/1/1978

Dear Sir,

I wonder whether you would like to print under "Dear Editor" the enclosed translation of a letter which we may consider as an addition to the "AIRS NEWS" on reciprocal licensing printed in AR January 1978, page 25-26.

It is nice to see that the DLs have found so much positive understanding and support at the official level.

vy 73s

Hans F. Ruckert VK2AOU

TRANSLATION

Letter from Deutscher Amateur Radio Club EV 12/1/1978

"Dear OM Ruckert VK2AOU,

Thank you very much for your letter of 9/9/1977. My reply was delayed due to discussions with the Postal Department, the results of which I wanted to include now.

The question of guest licences for visitors to Australia was actually not so much the point of our last inquiry, but much more the general recognition of amateur licences issued by the Federal German Republic. This question arose several times in connection with amateurs migrating to Australia.

You wrote in your letter that amateurs staying longer than 12 months or who migrate to Australia have to repeat the complete identical licence examination, this means that the examination has to be conducted in English.

There are now quite a range of countries to country reciprocal agreements, which were concluded between the Federal German Post Office and the national offices of other countries, which led to reciprocal acknowledgement of respective amateur licences. During a discussion with the authorised officials of the FTZ (West German licensing authority) it was confirmed that Australian amateur licences are fully recognised (as legally equal to German licences). This is so, if Australians stay longer (over 12 months) or permanently in West Germany, e.g. Australian licence holders will obtain the German licence without even having to pass an examination. This ruling stands even now without a reciprocal licence agreement between these two countries. One may say that the West German Postal Authority has already done its part of a reciprocal licence agreement and there is nothing else for them to do in this case.

As you know there are a large number of foreign radio amateurs in the Federal Republic of West Germany who came from many countries. They

received a German licence immediately, based on their licence of their home country, without having to sit for an examination. Some of these people have now lived in Germany for 10 years or longer. They are the 'full' licence holders with DJO calls. DCS calls are issued for the C-Licence (limited VHF licence).

It would definitely be considered a very appreciated gesture of the Australian authorities if radio amateurs who migrate to Australia could obtain the equivalent amateur licence without having to sit for an examination again.

Should the Australian authority wish to enter into an official reciprocal licence agreement, the West German Federal Postal Department would be very happy to do so. Perhaps you may have the opportunity to talk to OM DOD again with regard to this matter, and the Australian Telecommunications Department may be informed about the West German position, too and asked to make a move.

I thank you very much for your efforts.

vy 73

Karl Diebold DJ1BM (Manager DRAC)
Philip Laessle DK3LP (1st Vice-President DRAC)

Australian amateurs wishing to operate in West Germany (OK or relay) should ask for a licence application form by writing (or mail) one month prior to their departure.

DRAC — International Affairs.
3507 Straube 1
Lindendal 6
West Germany

The Editor,

12th August, 1977

Dear Sir,

I am writing on behalf of the Hunter Branch of the Wireless Institute of Australia, regarding the AR Special 1977 Federal Convention Report which appeared in AR for July and in part the item regarding the 70 cm VHF Band Plan.

I feel that members of the WIA and interested persons should be aware that the Hunter Branch did submit through the NSW Division of the WIA, an Agenda item regarding the original 70 cm Band Plan as published in the MIA Bulletin February 1976, however, the Hunter Branch feels that this present Band Plan is unsatisfactory to the present and future 70 cm Transceivers which are currently operating in Australia.

Currently in the Hunter Branch there is a number of Standard Radio of Japan Transceivers, ICOM IC31 Transceivers and Saita Transceivers, the performance of which is adjusted to operate between 432 and 435 MHz. The Hunter Branch expresses the wish that the input and output frequencies of proposed 70 cm Repeaters should be reversed, making the input to the Repeater high and the output low where the Repeaters are tuned for maximum sensitivity. This would allow 3 simplex Channels should fall between 432 and 435 MHz.

A number of tests have been carried out using this equipment and it has been found that the present Band Plan is unsuitable to the present Transceiver receivers, however the Transmitter can be moved on an operational basis from 434 to 438 MHz and the power output will drop 2 dB. One can offset the loss in power, but one cannot afford the loss in Receiver sensitivity.

The Hunter Branch therefore recommends that members closely look at the European Region 1 UHF Band Plan which is much more suitable in the operation of Simplex frequencies and Repeaters with the present type of equipment that is currently in operation. We feel that it is not too late at this stage that a long hard look should be given to the 70 cm Band before we get ourselves into the chaotic mess that we have experienced with the 2 metre Band over the last five years.

Currently there are five stations operating Simplex on the frequency of 435 MHz in the lower Hunter Valley. The Hunter Branch would be interested to hear from other areas regarding this matter.

Yours faithfully,
Rainer Pross VK2CN
On behalf of the Hunter Branch

EDITOR'S NOTE

It is understood that this matter is currently under investigation by the NSW Division Repeater Group.

VHF-UHF AN EXPANDING WORLD

Eric Jamieson, VK5LP

Continued from page 1

AMATEUR BAND TABLE

VK3	VK3MA, Mawson	83,360
VK1	VK1RTA, Canberra	104,475
VK2	VK2WI, Sydney	82,658
	VK2WI, Sydney	144,810
	VK2HHR, Murrumbidgee	144,128
VK3	VK3RT, Vermont	144,706
VK4	VK4RTL, Townsville	82,480
	VK4RTT, Mt Mowbrum	144,480
	VK4RBS, Brisbane	492,480
VK6	VK6VF, Mt. Lofy	83,008
	VK6VF, Mt. Lofy	144,808
VK6	VK6RTU, Perth	82,308
	VK6RTU, Kalgoorlie	82,358
	VK6RTW, Albany	82,368
	VK6RTW, Albany	144,808
	VK6RTU, Perth	144,808
VK7	VK7RRT, Launceston	82,400
VK8	VK8VF, Darwin	82,208
JA	JAKYU, Nagoya	82,500
KG8	KG8JDX, Guam	80,118
KH8	KH8QEL, Hawaii	80,184
ZL1	ZL1VHF, Auckland	80,180
	ZL1VHW, Waikato	82,180
ZL3	ZL3BHF, Upper Hutt	80,170
	ZL3VHF, Palmerston North	82,160
	ZL3VHF, Wellington	144,208
	ZL3VHF, Palmerston North	144,208
	ZL3VHF, Palmerston North	80,200
ZL3	ZL3VHF, Christchurch	144,208
ZL4	ZL4VHF, Dunedin	144,408

* Ian VK4ZIO advises the Townsville beacon is again operating but this time at a temporary location on 82.40. So far no reports of it being heard.

** The ZL3VHF beacon is certainly still operating on 82.500 despite having been advised in writing it was on 82.250! (Reported in these columns last month.) I have heard it myself on 82.500 and so have a number of other operators, so the frequency stays at 82.500 unless more positive advice is received from New Zealand, after all, it is not such a much more positive signal actually hearing the beacon here in VK5 on 82.600!

TWO METRES AND UP

Instead of the usual launching into six metres for this time of the year, this month we will take a look at 144 MHz first. Great things have been happening there and also on 432 MHz, so I asked David VK5KK to write me a summary of happenings because he has more opportunities of being around on the bands during the summer than I. However, I can support him directly in most of what was achieved, at least on 2 metres, since the rather dramatic upgrading of that band at this GTH. Anyway this is David:

"On 10-12-77 a tropospheric opening occurred between Adelaide and Albany signals peaked on 2 metres around 1200Z. VK5KK worked VK6XY, VK6WG and VK6KJ with signals between 5 x 9 and 5 x 9 plus 20 dB. The Albany beacon on 144.800 had been heard since 2300Z with signals peaking at 100Z, at 1200Z, at 1400Z. VK6KJ worked on 432 MHz peaking 5 x 9 plus 10 dB. At 1300Z VK6WG was worked at plus 20 dB. At the same time VK6WG fired up a signal on 1205.12 MHz, and worked him crossband, his signals averaging 5 x 2 with quick QSB. Receiving equipment at VK5KK consisted of a 3 foot diameter parabolic dish aimed at 432 MHz, a feed using ring mixer converter mounted at the feed with a T8700A receiver as IF on 144 MHz. The distance is 1180 miles, some 10 miles further than the present two-way record. Signals remained until the morning (2230Z) and faded out.

"On 14-12-77 a tropospheric opening occurred into VK5 and on 2 metres. Also under the same conditions VK6KJ and VK6WG were heard working on 6 metres at 5 x 9 signals (360 miles). Also VK6ZBJ and VK3VJL in Melbourne were heard working the south-eastern VK5s. VK3OT, VK3AXV and

VK3CBE were worked on 2 metres. At 1305Z VK7ZIE (Devonport) was worked on 2 metres, signals both ways 5 x 5. At 1350Z VK7ZAH (Launceston) also worked 5 x 5. Distance 665 miles. VK7ZIE again worked at 1408Z 5 x 6

"On 15-12-77 the conditions prevailing the previous night still existed, though not as good. At 1103Z worked VK6BEN then VK3AXV, VK3OT and a cross-band (52-144 MHz) contact with VK3AXV. All signals between strength 4 and 5.

"On 18-12-77 a very weak opening occurred between Adelaide and Albany on 2 metres. Worked VK6XY at 1225Z 5 x 5 peak at 1246 and disappearing 1258Z.

"On 26-12-77 a short opening between Adelaide and Albany via what was probably sporadic E. At 0435Z worked VK6BE at 5 x 6 both ways but by 0440Z signals disappeared. The Albany beacon on 144.5 remained at 31 until 0803Z. At the same time of the opening, six metres from Albany were very strong. General weather conditions and the pattern of the signals did not seem correct from later observations for it to be a tropospheric opening.

"On 1-1-78 a tropospheric opening occurred into VK3. At 0445Z worked VK3BEN then VK3OT and VK3AXV on 2 metres. At 1100Z worked VK5MAC (Mt. Gambier) on 432.1 with 5 x 9 signals (280 miles). At 1300Z worked VK3ZBJ 5 x 9 both ways on 2 metres, also VK3VJL at 1345Z. At 1405Z worked VK3ZBJ on 432.1 cross band to 2 metres. Signals at 432.6 x 1, 420 miles. At 2013Z worked VK3OT on 144.1

"On 2-1-78 at 0745Z worked VK3AXV then VK3OT, VK3ZBJ and VK3ZOV on 2 metres. At 0800Z worked VK3ZOV on 432.1 with signals peaking 5 x 9 plus 10 dB. Power used at both ends 10 watts PEP. Distance 530 miles completely over land. Also worked VK3ZBJ (5 x 6), and heard VK3YU in Melbourne, 5 x 1. Also worked by VK3ZOV were VK3ZPW and VK5MT, VK3B1Y/P (on Mt. Skene, 80 miles NW of Melbourne, 5155 ft, a.s.l.) worked 5 x 6 on 144.1 and heard VK5KK on 432.1 at readable strength but no contact. Other stations contacted from VK5KK GTH were VK3ZOV, VK3ZBJ, VK3VJL, VK3YU, VK3ZBV, VK3ZCF and VK3BEH. Also heard was the Gippsland repeater VK3RGE at 1100Z to at least 1430Z, distance over 600 miles.

"On 5-1-78 the band opened to Albany on 2 metres. Signals also appeared on 432 and 1206 MHz, and were favouring Adelaide and points further south. The first two-way contact on 1206 MHz for the season occurred between VK5GR and VK6WG with good signals both ways. VK6NY was also heard in Albany, but not worked.

"On 10-1-78 band open to Albany with signals mainly favouring further south. VK6XY only station worked 5 x 2 both ways.

"On 11-1-78 the band was still open to Albany with stronger signals than the night before. At 1005Z VK6KZ/P (at West Cape Howe, 19 miles west of Albany) successfully worked VK6ZBJ (Frankston) on 432 MHz at reasonable strength after first contacting on 2 metres. Distance 1525 miles, which appears to be a new two-way world record for 432 MHz. 1206 MHz was tried unsuccessfully at both ends. Worked by VK5KK on 2 metres were VK6WG and VK6KZ/P, both 5 x 2.

"On 12-1-78 the signals had reached their peak, having dropped out of the VK5 area. Worked on 2 metres were VK6WG, VK6KZ/P, VK6BE and VK6KJ. Also on 432 MHz worked VK6WG and VK6KJ, heard VK6KZ/P but not worked.

"Equipment used for the new 432 MHz record, VK6KZ/P, FT101E to solid state transverter, 10 watts output, antenna uncertain, but 13 ft. used in 1976 VK3ZBJ-80 watts PEP from solid state amplifier."

On the question of whether the contact between VK6ZBJ and VK3ZBJ becomes a world record hinges the doubt expressed overseas that the original claims for record of 2540 miles by W0NLZ and KH6UKJ in 1959 has not been proved, and the present listing according to QST appears to be around 1210 miles, this being so, then the recent contact easily exceeds that distance.

When one looks at the map of the world, and I hope you will do this, the results of my next comments, there are few if any places in the world situated along the favourable west-east path which have many chances of extending existing records,

other than that presented by the path between VK6 (mainly at Albany) and extending firstly to VK5, then on to VK3, VK7 and finally ZL. Here along the west-east path are situated armlets of comparable nationalities, a similar band usage, similar overall interests, similar power limitations, etc. Overseas contacts need to be made between stations of different nationalities, and over considerable distances, but in many cases with no activity allowed at one end. Whilst we have been rather slow to take up the challenges offered, I feel the future is a great one for VK and/or ZL. There seem to be no areas of real 144 MHz interest other than perhaps to Japan which will exceed 5000 km. Anyway, whatever happens in the States for world records, there is little doubt the amateurs will make them, and VK could well be sharing the prizes! It's up to you boys in Albany, I fear, to hold up the starting line, where the amateurs are, unless a guess, but you will surely share the contacts.

FRUIT 144 MHz OUT OF VK5

On 16-1-78 at 0203Z VK3ZBH/S in Alice Springs, N.T., worked VK4AZE in Bundaberg on 144.1 MHz. Also worked VK4AZE on 144.1 MHz. VK4AZE, also Mored, VK3ZSH/S used an IC202, not five-eighths wavelength ground-plane. Further measurements were 5 x 8 plus 1 at 0314Z VK3ZBH/S worked VK2BKT on 2 metres FM a.m.plex using a 2 watt hand held Ken. KP202 transceiver, signals 5 x 5, distance 1100 miles. At 0303Z VK3ZBH/S heard a short call from VK3ZBW in Adelaide at 144.058. The return call (attempt) was only heard by VK5KK and lasted a few seconds. Most probable explanation is a small amount of spillover distance being some 250 miles closer.

VK6ZGF also operated on 2 metres SSB and FM using an IC202 into a QG08/40 running about 100 watts into 10 ohm. yagi at 40 feet. He worked VK4AZE on 144.1 MHz. VK4AZE, also Mored, VK3ZBH/S, VK2VQV and VK2BKT (both Mored and 1100 miles), VK4AZE (Bundaberg, 1150 miles), VK4ZIT, Brisbane, and VK2ZAY, near Gunnedah, 1200 miles.

It was predominantly a strong east-west type opening operating at around the maximum top distance for E. The night before the VK3RTG beacon on 144.7 MHz was copied in Sydney and Brisbane. Six metre conditions all over the continent were unusually good. Many stations were vying to make the distance from both the southern States and also Darwin and Kalgoorlie, but no other contacts apart from the above occurred. From general comments it seemed that after 0400Z (morning?) the night was not heard strongly from northern VK2, the band closing at 0416Z.

The opening was discovered by chance after Bundaberg amateur who works at the Bundaberg aerodrome rang VK4AZE with the suggestion it may be worth a look on 2 metres towards Alice Springs since Bundaberg Tower was copying Alice. However, the tower was at least 10 years old. Hence after great confusion on the 8 metre calling frequency (some will never learn to QSY) VK4AZE managed to get through to VK3ZSH/S and eventually work on 2 metres.

It is the first time VK8 has worked out on the State on 2 metres via terrestrial propagation. A rather unique occasion, not only from the point of view of the first VK8 QSO, but unusual. E recovery for perhaps the best at least 10 years. It would then come as a surprise to say that up until 10-1-78, Es on 2 metres had been extremely poor and as far as 6 metres is concerned a year well below average, perhaps, from the views of several people, the worst in six years!

On 17-1-78, the day after, both 6 and 2 metres were extremely quiet. This, as in the past years, a fairly typical, in some cases the band does not recover for a week or more. Usually conditions in the past few years have built up on 6 metres and I finally bursting on to 2 metres. The peak would only last a period of several days then suddenly die.

Again my thanks must go to David VK5KK for the resume of happenings for that rather rare

occasion of VK6 2 metre DX — maybe it will travel south next time!

NEWS FROM PERL

I was pleased to receive a lengthy letter from Walter VK5KZ, who normally resides in Perth but makes a seasonal pilgrimage to Albany to bolster the VHF operation from that area. The following notes are taken from his letter and are of interest because they outline activity in VK6 in general and Albany in particular.

"Activity outside of Perth is fairly limited on 144 and 432 MHz SSB. However, weekly shreds with Wally VK5WG in Albany (approximately 400 km) on 144 MHz are usually successful, with Bernie VK5ZJ and John VK5RY only on really calm nights. In fact, VK5BSE is not well situated for OSOs to Perth. 432 MHz is a long way down over the same path. Fred VK5MZ at Busselton (180 km) is a regular on 144 during 1-2 a.m. shreds with Albany on Saturdays (0700 WAST).

"Best contacts from Perth on 144 and 432 have been Colin VK6ZCO in Carnarvon (800 km), who has worked a number of Perth amateurs including Don VK5HK and Phil VK6ZKO. Others have made it only on 144 MHz. The most intriguing fact about 144 MHz is that the Perth/Adelaide path has been worked twice. The late Radio VK5BDO worked VK5GL on 144-15.1 and VK5OR on 9-8.42. Despite all the improvement in equipment and rise in the number of amateurs, the only other Perth confirmed two-way contacts occurred. Reports of hearing beacons exist but nothing else.

"In Perth activity on 1296 MHz is slowly increasing, with myself VK6KZ Don VK5HK having two way capability, and others including Phil VK6ZKO and Frank VK5FW and Bob VK6ZFY moving in that direction. As far as I know no one is pursuing activity in bands higher than 1296 although Don VK5HK is mulling about 2304.

"Don VK5HK, by the way, deserves special mention for his lower. The 20 m crank up till over tower and down for 160 metres, and supports wire antennas for 80 and 40 metres. There is a tri-band beam for 20 15 and 10 separately beams for 52, 144 and 432 MHz, and a corner reflector for 1296! (What, no FM? SLP)

"In Albany Wally VK5WG is the home constructor par excellence! Not only is he skilful electronically, but his laithe work and mechanical construction are a tribute to his craftsmanship. He is a skilled electrician, a competent car and boat mechanic, and a competent welder. He has a number of antennas leads with silver. Wally's current project is 2304 MHz and has a 2 m dish for that band as well as the 1 m dish for 1296. Showing his ingenuity is the fact that his basic antenna for the 2304 chain is a homemade standby the 522.

"Albany is something of a mecca for VHF/UHF enthusiasts in the summer. Ross VK5ES, Steve VK6ZBW, Phil VK6ZKO have been frequent visitors as well as myself. The year I added 1296 Tx/Rx capability with a 1 m dish. Highlights of the 1977-78 season from Albany were undoubtedly the 144 contacts at 13162 on 8-178 with Michael VK5ZGJ 128 km east of Melbourne for what should be a world record for 144 MHz. The late VK6ZKO moved contact to Las VK5ZBJ on 11-178 at 19172 with signals 5 x 3 both ways. I was operating from Torbay Hill about 20 km west of Albany. Also worked on 144 558 over the period 8-178 to 12-178 were VK5OT, VK5APW, VK5ZCW, VK5AHM, VK5ZV, VK5A, V, VK5MK, VK5NY, VK5RO, VK5SV, VK5TF, VK5QZ, VK5PR, VK5MT, VK5ZG, VK5ZWR, VK5KK and VK5ME.

"I would like to comment that the Ross Hull rules must have been written by HF enthusiasts. The idea of call areas to distinguish points scores shows complete lack of understanding of VHF VKS amateurs can NEVER aspire to win the Ross Hull trophy. Despite enthusiastic efforts by particular individuals in the past only once has a trophy come to W.A., to the late VK5BO in the days when the contest was 50 MHz only I would like to see the points per distance as the main basis for scoring. I would also like to see separate national awards for each of the VHF/UHF/SHF bands as well as trophies for the best of the jumping between all of the bands. This would encourage activity on the lesser used UHF and SHF bands. Finally I support you strongly in your efforts to get 50 to 52 MHz back. I see no reason why this frequency

band could not be shared with commercial services on a non-interference basis as are bands such as 7 and 1215 MHz."

Thank you, Walter for your interesting letter. I support you in all your comments in the last paragraph, as I am sure most others will, particularly in regard to the Ross Hull scoring!

A letter from Roger VK6ZTB encloses a clipping from the *Western Mail* dated 10/12/78, headlined, "The long rumoured Russian intention of setting up an amateur satellite system (RS) has now been confirmed with the registration by the USSR of details with the ITU. RS will be based on three of our satellites carrying active transponders (uplink 145.0 to 145.8 MHz, down link to 29.3 to 29.4 MHz) with 'massive' communication channels of 8000 km. The intended orbit has an inclination of 82 degrees and will be circular at about 850 km height with a period of 102 minutes. 144 MHz transmissions should be possible with powers of about 10 to 15 watts to periods of 10 to 12 dB gain. The system is due in 1977-78 and the first launch could be as early as October.

"The next AmSat-Oscar launch may be February 23, 1978. The ARRL has recently introduced a 'DYCC' award for Oscar operation. Pat Gowan 'G3OCR', with over 80 countries worked through Oscar, appears nearest to qualifying."

Roger also reports that both the beacons and repeaters in the Sydney area are to be upgraded, the repeaters in the process of complete reconstruction. The 8 metre beacon has been rebuilt, and now runs 20 watts output and has an A50-12 in the final, which will later be lifted to 30 to 60 watts output. A 28 MHz beacon is under active construction, also a 432 MHz beacon.

Graham VK6ZCJ sends along his usual letter and remarks on how thrilled he was to work Ken VK6KM in the first time making it the 90 country for him on 6 metres. Signals were up to 8 x 5. Jeff VK6ZGF in Alice Springs also worked Ken.

Graham said when compared to last year conditions for 1977-78 had been quite poor. In Darwin, despite having worked VK1 to VK9 inclusive, JAI, 2, 4, 6, 8 and 10, and VK13 and YB. He believes ZL TV was heard about twelve times in Darwin but only ZL3 worked.

On 30-12-77 Graham worked Ken VK6ZFO on Koolan Island, a distance of about 530 miles, which is short skip for Darwin. Ken told him he was watching TV from Indonesia on our Channel 10 (10.75-10.78) MHz. The picture was available nearly every night during October at solid noise free strength for hours on end, in full colour. There is apparently a two metre FM net in D,akarta, where the TV signals come from, but no contacts have been made. Ken works Ron VK6FM in Derby nearly every night on two metres SSB over a path of 80 miles. Thanks, Graham.

I have received a letter from Ian VK6ZIT, who supports the move to regain 50 to 52 MHz although he points out it will be of little use to him, being only 2 to 3 miles from Channel O. He also reports retiring the old 5 element yagi used on 6 metres, and replaced it with a shelve curtain array for both bands. The moment it has temporarily shifted to a Las H shape! He believes it is that end of this array points at Channel O which puts the main lobes at 30 degrees and 210 degrees. Whilst not well placed therefore for JAI, it is all right for VK3 and 5 and the central Pacific, and hears considerably less garbage from Channel O as a result. He took the old amateur ingenuity coming to the fore again. I also note Ian is still threatening to build a linear for six metres!

Kerry VK6BXT in Moore writes to confirm news of his contacts to VK7AH, VK7DA and VK7JG on 2-1-78 (reported as late news last month), and also his working of VK6ZDF and VK6ZB/8 at Alice Springs. He is on 144 MHz. The fact that it paid to listen was proved when Kerry points out his contacts on 2 metres to VK7 were not pre-arranged on 6 metres, but as he always listens on 144.1 when operating on 5 metres, he heard some CW and on going back to ORZ was rewarded with three Australian OSOs. That is the moral, boys, always monitor calling frequencies if you are doing other things, but if operating at least listen an other band as well.

Steve VK5OT has also written confirming again the various contacts as outlined at length at the

start of these notes by David VK5KK. He also reports a good opening on 6 metres to VK3 on 15-7-78, culminating in VK4ZRF hearing the VK3R1G beacon on 144.700 at 53 at 1030Z.

30ZCM is now on 6 metres running 50 watts to 5 e. yagi from University of South Pacific VMX in Honareia, Solomon Islands, willing to set up on six metres this coming year. At the end of his tour of duty in 1980 he can dispose of gear. He requires second-hand FTW50 or similar for loan or buy — can anyone help? P2088 in Lae interested in 6 metre contacts to VK.

Steve also comments on the low level of Ross Hull activity this year, and thinks that unless the rules are changed there will be less and less participation. Perhaps the Ross Hull contest should be changed to one of maybe one or two awards. It would some constructive thinking as time proceeds (SLP)

A message from John VK5MG advises Stewart VK5DSW and Graham VK5DGM are at Casey Base, and Graham will be setting up to work Oscar mode A and B, and should be ready by the time you read this, and also going to see Graham can verify the existence of the VK5 beacon.

On 29-11-77 30CR commenced regular transmission on 103.5 MHz FM from a station located at the Gippsland Institute of Advanced Education at Churchill Power about 20 watts. It is intended to eventually increase the power to 1 kW and to locate the transmitter at Mount Tassie. Transmission will be in stereo. Broadcast time 9.30 to 11 p.m. local time. . . . Thanks to Eastern Zone News Bulletin.

The above station could be a useful pointer to 144 MHz operation for those with a 300 to 600 mile range of the station, this particularly when power is increased to 1 kW. I am sure the operation of the station will be of immense interest to VK5 2 metre operators.

Before I close I must satisfy Roger VK5ZTB, who in his letter said he was seeking my synopsis of band conditions for the 1977-78 summer season. I would therefore, have to say a x metres started fairly good over most of the country, then took a horrible flop in most areas throughout the fortnight or so leading up to Christmas, good around Christmas, then variable until the end of the year. Since the New Year there has been a considerable upsurge in interesting contacts on 5 metres, and the Es conditions generally have remained even if in a on/off basis for the greater part of January, and if I dare predict, I suggest they may go on being available in such a manner throughout February into March when I believe we might again have some good band 1296 conditions about the end of March to mid-April. There are enough interesting stations around now to keep the genuine six metre operators at their gear much more than in the past that way more contacts overseas are going to be made. So, the season finished well, and of writing hasn't finished yet!

144 and 432 MHz have excited themselves at different times, and it seems likely we will see continuing interest in these bands as more and more stations realise you can still work a very long way on both those bands if conditions are right, and conditions are right more often than you think, it only needs some dedicated operator to get the results. So, first part of season not too good on these two bands, latter part excellent! As a matter of interest at my own GTH the Albany beacon on 144.600 was audible on 12/1 of the first 13 days of January, at strengths varying from S1 to S8, path distance over 1200 miles.

Closing now with the thought for the month "Most of us can easily do two things at once, which is all but impossible is to do one thing at once."

73. The Voice in the Hills.

QRP

MARITIME MOBILES — US

According to Ham Radio October 1977 amateur maritime mobile stations aboard US vessels on the high seas (not in foreign territorial waters) will be permitted to operate from 1215 Sapporo to operate on any frequency that amateurs are authorized to use in that ITU region where the ship happens to be located.

WHAT'S BLACK & WHITE AND TURNS 2-METRE OPERATORS GREEN?



THE NEW KENWOOD TR-7400

This is the one, the Kenwood TR-7400 FM mobile transceiver of 25/10 watts and complete 2 metre band coverage (144-148 MHz). It has the largest digital readout in its class, and the 800 channel

coverage with PLL frequency synthesizer provides you with all existing and proposed Australian repeaters. A convenient front panel switch offsets the transmit frequency up or down 600 kHz.

WHENEVER YOU WANT TO MOVE UP — KENWOOD HAS THE WAY



TR-2200 2-metre VHF
FM portable receiver



R-300 all band or ham
band communications
receiver



The new
TS-520S HF transceiver
— Ideal for the novice



TS-700 2-metre VHF all
mode transceiver

Your nearest Kenwood dealer will be happy to give you more information on the entire Kenwood range of amateur radio products including the remarkable new TR-7400. Contact him direct or write to us at Weston Electronics.

Marketed in Australia by
Weston Electronics Company,
2 The Crescent,
Kingsgrove, NSW 2208.
Distributor for Trio Kenwood
Corporation, Japan.



KENWOOD

NAME
POSTCODE
PLEASE
SUPPLY ME
WITH MORE INFORMATION
PHONE No
ADDRESS
CALL SIGN
REC-AP-2

AMATEURS' PARADISE

**SAVE ON FREIGHT CHARGES —
BUY FROM QUEENSLAND'S STOCKIST**

All the LATEST KENWOOD RANGE in stock — Also ICOM IC202, IC215, IC502 — YAESU FRG7 — KYOKUTOS — MIKES — CLOCKS — HF & VHF ANTENNAS — BALUNS — ROTATORS — NZ & VK CALL BOOKS — WORLD MAPS, etc. etc.

**Mail your Order and we will send by return — well packed.
SALES BACKED BY EXPERT WARRANTY SERVICE.**

Telephone: (075) 32 2644
121 NERANG STREET, SOUTHPORT, QUEENSLAND 4215
(Opp. Southport Hospital)

ANTENNA PARTS, KITS

V
K
3
A
S
C



V
K
3
A
S
C

QUAD HUB, \$39.50 plus Postage
(3 kg) mass

QUAD KIT, \$153, freight forward
Consisting of Hub 12 ft. solid F.I.G.
Spreaders Aluminium Extenders.
Ferrules, Adaptors, 350 ft 0.064 Hard
Drawn Copper wire
Nylon line and insulators.

**MOBILE ANTENNA PARTS, etc
NEW BUSINESS ADDRESS:**

J. VAILE

3 LESLIE COURT, BURWOOD
VIC. 3125 — PHONE 288 1047



EMONA electronics

CBC BANK BUILDING, HAYMARKET PHONE: 212 4815
Room 208/661 GEORGE STREET, A.M.: 399 9061
SYDNEY, NSW 398 6378

INTRODUCING *Dentron*

LINEAR AMPLIFIERS:

DENTRON RADIO CO.: MLA-2500, 160-10m linear amplifier.
DENTRON RADIO CO.: MLA-1200 — 80-10m linear amplifier.
DENTRON RADIO: 160-10L Superamp, 160-10m linear amplifier.

ANTENNA TUNERS:

DENTRON MT-3000A DENTRON 160-10AT DENTRON 80-10AT

The MT-2000A

The Dentron MT-2000A antenna tuner, an economical full power tuner designed to handle virtually any type of antenna, whether it be a vertical, beam, quad, dipole, or long wire. The sleek styling and low profile of the MT-2000A is certainly beautiful, but be assured that isn't all you're buying. The MT-2000A is designed and engineered using heavy duty all-metal casework and high quality American components throughout. When you consider the MT-2000A's unique features — front panel coax bypass switching, front panel lighting protection antenna grounding switch, 3 kW PEP handling capability and built-in 3 core balun for balanced feed line, we're sure you'll decide to buy American and stay with Dentron.



The Jr. MONITOR

Call it what you will — antenna tuner, automatic match-box or matching network, the JR. MONITOR has it all wrapped up in one neat 5 1/2 in. w. x 2 3/4 in. h. x 6 in. d. all metal cabinet. Think of the unlimited possibilities you'll have for experimenting with dozens of antennas! For instance, the Dentron All Band Doublet fed with balanced feed line hooked to the JR. MONITOR covers 1.8-30 MHz — or by this mobile suggestion, 100 in. mobile whip fed with coax to the JR. MONITOR located under the dash will give you 10-40 metre mobile coverage and no coils to change! Order Today

MAIL ORDERS: Box K21, Haymarket
NSW, 2000, Australia

WRITE, PHONE OR CALL IN!



DENTRON MLA-2500

Dentron Radio has packed all the features a linear amplifier should have into their new MLA-2500. Any Ham who works it can tell you the MLA 2500 really was built to make amateur radio more fun.

DENTRON ANTENNAS:

SKYMASTER — 10, 15, 20, 40m VERTICAL
SKYCLAW — TUNEABLE MONO BAND 160-40m
EX-1 IDEAL VERTICAL FOR PHASING

- WRITE OR CALL FOR SPECIFICATIONS.
- CHECK OUR MOST SENSIBLE PRICES.

**WE ARE AUSTRALIA-WIDE
DISTRIBUTORS OF
DENTRON PRODUCTS**



EMONA electronics

CBC BANK BUILDING, HAYMARKET
Room 208/651 GEORGE STREET,

PHONE: 212 4815
A.H.: 399 9061

MAIL ORDERS: Box K21, Haymarket
NSW, 2000, Australia

WRITE, PHONE OR CALL IN!

NEW-NEW-NEW

National

RJX SERIES



A Unique New SSB/CW Transceiver For Amateur Communications

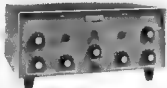
There is no substitute for quality, performance, or the satisfaction of owning the very best. Hence, the incomparable National RJX-1011 amateur transceiver. The RJX-1011 covers all amateur bands 1.8-30 MHz (160-10 metres). It utilizes advanced Phase-Lock-Loop circuitry with dual gate MOS FETs at all critical RF amplifier and mixer stages. There's a rotating dial for easy band-scanning and an electronic frequency counter with digital readout and a memory display that remembers frequencies at the flip of a switch. And that's just the beginning. Matching speaker unit RJX-S1011 and complete external VFO RJX-V1011 also available.

For further information and specifications write, phone or call in!

ANNOUNCING Wilson's SYSTEM ONE

DIRECT FROM USA

TRIBAND ANTENNA: A DXer's delight, operating 20 m on a full 28 ft boom with 4 elements on 20-15, and 5 elements on 10. Gain 10 dB!



ORDER YOUR ROBOT MODEL 400 SSTV CONVERTER NOW!

With the Robot 400 you just plug it into your transceiver, connect a TV monitor or your home set with the optional Robot RF adapter kit, tune to 14.230, and you're operating SSTV.

Go RTTY — EMONA's silent way!



New Model 75 RTTY TO VIDEO CONVERTER

Features:
4 speeds (60, 66, 75, 100 wpm)
Built-in T.U. with 3 shifts (170, 425, 850 Hz)
32 character x 16 line video output with scrolling
Connects directly to receiver audio & video monitor



New Model 150 RTTY KEYBOARD

Features:
4 speeds (60, 66, 75, 100 wpm)
Built-in ASK with 3 shifts (170, 425, 850 Hz)
Automatic CR & LF at end of 6 or 72 character line
Built-in low shift CW ID provision



NEW: Medium-Sized Ham Antenna Rotator — FU 400.

Constructed for long trouble-free operation. 200 kg vertical weight capacity. Extra heavy duty disc brake that prevents wind-milling.

NEW Model DX-555 Counter-Generator

Generator:
440 kHz to 30 MHz, 5 ranges.
Output displayed on counter and available at back on rear panel 600 Hz modulation for AM receive vers.

Counter:
5 digit display 7 digit readout capability 10 Hz to over 30 MHz (250 MHz with prescaler). Input level 20m Vrms to 5 Vrms (Prescaler 200m Vrms to 2 Vrms). Base oscillator beats directly against WWV.

NEW COUNTER-GENERATOR

Two vital pieces of test equipment in one



LINEAR AMPLIFIERS

SCS: HF3-100L2, 3-30 MHz bi-linear amplifier

SCS: 2M10-80L2, 144-148 MHz, FM/SSB linear amplifier.

METRON: MA1000, all solid state, 1 kW amateur band linear amplifier — lightweight, compact and rugged

YAESU MUSEN: FL-2100B, 80-10m linear amplifier.

ANTENNAS:

HUSTLER: 4-BTV — vertical trap antenna.

HUSTLER: Mobile vertical trap antenna (80-10m)

HUSTLER: G6-144A, 6 dB gain base colinear.

HUSTLER: CGT-144, 5.2 dB gain mobile colinear trunk-lip mt.

HUSTLER: BBLT-144, 5/8 mobile with trunk lip mount/spring

CUSHCRAFT: ATB-34, 4 element beam, 10-15-20m

RF PREAMPLIFIERS FOR 3-30 MHz BAND:

Model SX-59 for use with transceivers.

SPECIFICATIONS

Frequency range 3-30 MHz in 3 bands,

3-7, 7-14, 14-30 MHz

Gain 20 dB nom. (at 7 MHz), front

panel variable control

Attenuator — 20 dB attenuation sel-

ectable from front panel control.

Imped. 50 or 70 ohm systems, UHF connectors on rear panel.

Switching requirements: requires external relay contact switching when used with transceivers. Remote contacts readily available from most amateur HF transceivers, including TS-510, TS-511, TS-520, TS-521, FT-101, FT-401, FT-200 and FT-201



AMATEUR BAND TRANSCEIVERS:

NEW — NATIONAL: RJX1011 — Unique SSB/CW 160-10m transceiver with digital readout and matching speaker and external VFO

TRIO KENWOOD: TS520S — SSB/CW, 160-10 metres, with optional digital readout

TRIO KENWOOD: TS820S, 160-10 metres digital readout

TRIO KENWOOD: TS820, 160-10 metres

TRIO KENWOOD: TS700A — 144-148 MHz all mode transceiver

TRIO KENWOOD: TS600A — 50-54 MHz all mode transceiver

TRIO KENWOOD: TR-7400A — 144-148 MHz FM transceiver

YAESU MUSEN: FT101E — 160-10 metres, AM, SSB, CW transceiver

YAESU MUSEN: FT301 series, 160-10m AM, SSB, CW transceiver

RECEIVERS:



DRAKE: SSR-1 Wadley Loop receiver

TRIO KENWOOD: R300 general coverage BCL receiver

YAESU MUSEN: FRG-7 general coverage Rx, Wadley Loop System

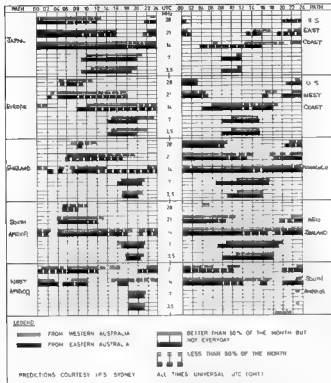
NATIONAL: DR48 (RF4800) — general coverage, digital dial, communications and BCL receiver.

ALL AMATEUR RADIO EQUIPMENT IS AVAILABLE ON 10% DEPOSIT TO APPROVED BUYERS!

Check EMONA'S most COMPETITIVE Prices!

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



regional reports in one document averaging 16 to 18 pages with 63 reports to the page covering 3500 to 29700 kHz. These summaries are forwarded for action by all interested societies, 33 in all, and for information to another 32.

Having back to region 2, the USA, Canada and several South American societies contribute, and the complete region 2 summary is sent to G3P5M monthly as I do for region 3. My summaries recently have dwindled to less than one page per month, a sad reflection on the ability of the Australian Amateur to realize the significance of something that may affect him in the future.

While in England the XYL and myself enjoyed the hospitality of Stan GSKB and his XYL Mary Stan is dedicated and very active with IW affairs and is the UK co-ordinator. He has the address to the Home and to the Foreign Office as well as to the BRC monitoring station at Baldock and the Telecommunications Monitoring Station. Alerts are handled by both of these stations, an instance being when the Russian pulse transmissions were first detected both monitoring stations took time to ascertain where the signals were coming from, and by comparison and co-operation pinpointed the locations of these transmitters in the USSR. I questioned Stan about the RTTY read-out. He forwarded to the RSGB in 1973 and he told me that he was mainly responsible for alerting through my submissions the stations GSK, the British Embassy station in Ankara, Turkey (transmitting on 14 080 MHz and KJG in Yugoslavia on 14 285 MHz). These stations were subsequently removed from our bands.

Unfortunately because of a mishap to my XYL we could not visit G3P5M but I did have a lengthy telephone conversation with him. He is at the moment, as well as compiling monthly summaries as per above busy making a computerized comprehensive summary of all reports that have been submitted over the past few years. This is a pity to be of inestimable value to the delegates at WARC 79, but what a document it will be.

I gave me great satisfaction to know that although my reports are not up to the quantity of the other regions, they are greatly appreciated, and this alone spurs me on to endeavour to make members realize the responsibility as the Intruder Watch in Australia.

For hand capped amateurs either transmitting or listening, the Intruder Watch could be a very rewarding occupation.

ALPHA

LINEAR HF

POWER AMPLIFIERS

MODEL 374 - \$1,895.00

MODEL 76P - \$1,795.00

Enquiries

JAMES GOODGER VK2JO

AUSTRALIAN SOUND
AND SIGNAL RESEARCH

G.P.O. BOX 5076,

SYDNEY 2001

(02) 36 7756

INTRUDER WATCH

Alf Chandler, VK3LC

Before mentioning anything about my overseas trip I wish to pay tribute to my stand-in, Ivor VK3XB, for the sterling job he did in my absence, and also correct an anomaly. The January IW column was his effort and not mine as denoted his approach to our Administration left nothing to be desired, and I am sure has accomplished much.

In November 1977 AR a letter from Mr N W Lewis VK3ABH seems to criticize the working of the IW, and I refer you all to the reply by Ivor in the February issue.

While I was away I made it my business to enquire into all aspects of the IW in both region 1 and in region 2, and I found that a great deal is being done and has been accomplished in both regions in preparation for WARC 79. This fact and the extent to which the regional co-ordinators were getting co-operation from the members of their respective societies made me quite ashamed of the meagre support that I get from region 3 members. A few WIA members in Australia send in observations, but very few.

In region 2 the co-ordinator K8KA processes about three thousand reports monthly, while in region 1 the European societies forward their summaries to Colin G3P5M, the regional co-ordinator, who compiles a world summary each month called "The IARU Monitoring System Summary" and prefaced by "for the protection of the exclusive Amateur bands", co-ordinating all

VK/ZL CONTEST RESULTS FOR 1977

Thanks to all those operators who participated in last year's Contest.

From checking of overseas logs, many VK and ZL operators gave contest numbers to many DX stations. This really is what the Contest is about — activity of the DX stations towards VK/ZL.

Many DX stations need contacts for various awards, diplomas, etc., and besides VK/ZL operators often pick up a rare country or two. Some DX-Peditions and other stations preparing for a major world wide contest use the VK/ZL as a practice run.

The 1977 Contest was the first with new scoring methods. I have noted comments in the logs about them, and realize that some amendments are necessary to explain them more fully.

Now a few comments from the logs —

VK — new method does not encourage all band operation, particularly on 1.8, 3.5, 7.3, have a nice time sorting the logs, IFT use of prefixes as a multiplier seems a very good idea, 4KX not a single CW sig on 1.8 for 18 hours like being in solitary confinement, 4RL had been no publicity before the Contest, IFT a lot more interest points were added, points were multiplied for the final all band score, otherwise operators will concentrate on one band only — 2KT, and from —

ZL — scoring by prefixes is very ambiguous. ZMM scoring simply systems of scoring by prefixes not all that good, 4 x 4 YV/W6 a winner as a 4 x 4 prefix, but should be really scored as a W6 for difficulty also VE/W, etc., 1 AIZ working all

bands does not seem to do much to pick up a good score, but of course is a better test of operator and station over a range of conditions.

So it seems that for the 79 Contest it will be all bands QSO points, multiplied by the total prefixes worked, which will line it up with many other contests.

The queries raised about prefixes is best answered by example: JA1, JG1, JF1, W1, WA1, WB1, UR2, UR2 equals nine (9) prefixes. This should help sort out the Russian prefixes, as well as sorting out the new call signs appearing on the bands. It should help to overcome the problems of new operators trying to place an unfamiliar call against a country.

ZL1AXB's score of 160,000 is very commendable and ZL3BQ for 142,713 on CW is also very good. Now, VK operators, look at the Band winners for VK and ZL. Overall the Kiwis beat the VKs, eight certificates to four, so a more concerted effort for 1979 is needed to challenge the ZLs.

As to publicity, all major overseas societies, magazines, clubs, plus an extensive list of individual operators are posted a set of rules. Indeed, one of the ways we promulgate the rules is by a copy of the next year's rules being posted out with the Contest Certificates.

Quite a few logs were re-scored, and entrants may note quite a few changes in their revised scores. To their joy, almost without exception, the scores have been increased.

Thanks to all those who entered a log, and to the many who exchanged serial numbers with overseas operators, thanks also.

The overseas portion of the results will follow.

Good luck and good DX. See you again in 79. Neil VKONE

VK — PHONE							
Call	160	80	40	20	15	10	Total
VK1	—	—	16	47905	18077	1647	65545
LF	—	—	—	1784	304	—	2068
VK2	21	20	1035	101850	44865	578	148467
APK	—	—	656	60402	47560	—	108922
BLL	—	—	25	71012	6072	100	77309
WC	—	—	38529	—	—	—	38529
ABO	4	—	8296	1500	—	—	10900
ASB	—	—	—	6757	—	—	5757
VK3	—	—	9	111896	6538	—	115793
AH	—	—	—	56511	3089	42	58822
AFW	—	1	2	4056	29400	20	33481
ANA	—	—	1	12710	494	—	13205
WW	—	—	—	10643	892	—	10736
CK	4	2	980	504	4292	—	5928
SH	—	1	1	4275	—	—	4277
AMD	—	—	—	1044	798	9	1881
—	—	—	1	225	588	185	979
—	36	—	—	—	—	—	36
VK4	—	—	880	87173	63184	247	141284
UR	—	—	45032	10488	2680	56190	—
AGP	—	—	—	2290	2552	—	4839
TE	—	2	—	2290	2552	—	4839
DO	—	—	—	3780	420	4220	—
PJ	6	6	1	3048	320	11	3389
VK5	—	—	—	25700	6480	—	32180
WGD	—	—	—	18530	2576	—	21206
IT	—	—	—	2150	—	—	2150
VK6	—	—	1	74867	15741	2	90611
NE	—	—	192	54194	7752	4260	66398
RV	—	—	—	16938	12211	—	23119
NBZ	—	—	—	10258	1380	11638	—
VK7	—	—	—	20862	1612	—	22474
NFR	—	9	—	—	—	—	18
VK9	—	—	—	11832	168	1329	13320
XW	—	—	—	24	—	—	24
X1	—	—	—	—	—	—	—
VK — CW							
Call	160	80	40	20	15	10	Total
VK2	—	—	3212	50836	34806	—	88914
BLL	—	—	—	47160	960	36	47947
AGF	—	—	25	24834	2170	500	27329

VK3	—	—	52958	—	—	—	52958
QI	—	—	40680	—	—	—	40680
MR	—	—	—	32922	—	—	32922
QJ	30	3564	23540	858	588	25850	—
VF	—	—	17346	—	—	18594	—
AMD	12	100	1187	100	—	1459	—
XB	300	—	—	—	—	300	—
XL	60	40	—	—	—	80	—
NAY	4	—	—	—	—	4	—
VK4	15	80	2545	62928	18868	3820	86457
XA	—	—	—	—	7580	—	7580
DO	—	112	210	3588	—	3910	—
OK	—	—	—	298	—	286	—
UR	—	—	—	—	195	195	—
VK5	—	—	—	99180	4590	—	103770
SW	—	—	158	18080	2112	—	21357
WD	—	—	—	13104	—	—	13104
QS	—	—	48	1271	190	—	1500
GO	—	—	—	210	—	—	210
VK7	—	—	280	32574	1012	16	33884
RY	6	24	1	2848	—	—	2979
JB	—	—	—	1568	300	1	1729
VK8	—	—	—	—	—	—	33500
HA	—	—	—	—	—	—	33500
ZL — PHONE							
Call	160	80	40	20	15	10	Total
ZL1	—	—	—	160080	—	—	160080
AXB	—	—	—	8541	63250	—	73791
AKY	—	—	—	32712	—	—	32712
BQO	12	5959	10668	8704	300	25643	—
BDQ	—	1080	—	—	—	1080	—
AGD	84	—	—	—	—	64	—
AUW	45	—	—	—	—	45	—
ZL2	—	—	4794	117872	18848	—	141514
ACP	—	—	1	15700	851	—	16552
AH	—	—	—	528	—	—	528
ZL3	—	—	—	34128	—	—	34128
GG	—	—	—	1131	400	—	1531
ABC	—	—	—	33750	5240	—	38890
LO	4	1	10191	5618	—	—	15812
ZL — CW							
ZL1	—	—	—	83340	—	—	83340
AXB	—	—	204	8500	12408	7538	4257
AIZ	2	4	25	18100	508	—	18637
HV	—	—	304	6867	6888	2046	16105
APW	—	—	—	—	—	—	72
AUW	—	—	—	—	—	—	—
ZL2	—	20	3380	64850	12296	1	81667
BR	—	—	—	68208	—	—	68208
AGY	—	—	—	—	—	—	68208
LA	12	64	1218	45045	30	—	46307
ATP	—	—	—	14274	—	—	14274
ACP	—	—	—	8880	—	—	8880
MM	—	—	—	2668	9	—	2677
ZL3	221	2244	28478	79190	45188	1647	149713
GG	—	16	1248	36850	16224	4	54342
BR	—	—	—	800	—	—	800
ABC	—	—	—	6334	48	—	6382
ZL4	—	—	—	1785	—	—	1785
OP	—	—	—	—	—	—	—
BAND WINNERS — PHONE							
Call	160	80	40	20	15	10	Total
VK	36	—	—	—	—	—	—
3CM	—	20	—	—	—	—	—
2Y	—	—	38828	—	—	—	—
3AV	—	—	111896	—	—	—	—
40K	—	—	—	53184	—	—	—
ENE	—	—	—	4280	—	—	—
ZL	64	—	—	—	—	—	—
1AQQ	—	1080	—	—	—	—	—
1BDQ	—	—	34128	—	—	—	—
3GG	—	—	160808	—	—	—	—
1A10	—	—	—	65259	—	—	—
1A1Y	—	—	—	—	—	—	—
1A1Z	—	—	—	—	—	300	—

BAND WINNER — CW							
Call	160	80	40	20	15	10	Total
VK	—	—	—	—	—	—	—
3FL	60	—	—	—	—	—	—
3XB	300	—	—	—	—	—	—
3QK	—	—	40680	—	—	—	—
SSW	—	—	—	99180	—	—	—
2APK	—	—	—	—	—	34866	—
8HA	—	—	—	—	—	—	33500
ZL	—	—	—	—	—	—	—
3GQ	221	2244	28478	—	—	—	45188
1A1B	—	—	—	83340	—	—	—
1A1Z	—	—	—	—	—	—	4257

CONTESTS

Kevin Phillips, VK3AUQ
Box 87, East Melbourne, 3002

CONTEST CALENDAR

March		ARRL DX Phone Contest
4-5	—	YL-CW CW Contest
4-5	—	Commonwealth Contest
11-12	—	Trieste DX Contest
18-19	—	ARRL DX CW Contest
25-26	—	CQ WW WPX SSB Contest
25-27	—	BARTW RTTY Contest

April		Polish "SP" CW Contest
1-2	—	ARC QRP QSO Party
1-2	—	ARC QRP QSO Party
1-3	—	ARC "H22" Contest
6-9	—	DX to W/VE YL CW Party
11-12	—	Polish "SP" Phone Contest
15-18	—	Common Market Contest
22-23	—	Bermuda Contest
22-24	—	ZERO District QSO Party
25-26	—	DX to W/VE YL Phone
29-30	—	Out "PACQ" Contest

TRIESTE DX CONTEST
Starts 0000 GMT Saturday, March 11, and ends 2400 GMT Sunday, March 12. This contest is between 13 stations and the rest of the world. Contacts are for single contacts only. All bands 10 to 80, both phone and CW, are permitted. Exchange only a signal report, 13 stations will also give 2 letters identifying their province. For scoring, multiply total number of QSOs by the sum of different provinces worked on each band. The same station may be worked on each band for QSO and multiplier credit. SWLs must report the call of the 13 stations as well as the station being worked, scoring same as transmitting stations.

Awards — Certificates to all participants, and a plaque representing the 14th century seal of Trieste City to the top scoring station in each DXCC country.

Send logs by May 21 to Trieste DX Radio Club, PO Box 1342, 34101, Trieste, Italy. (Award winners are expected to cover mailing charges, 10 IRCs.)

CQ WW WPX SSB CONTEST
Starts 0000 GMT Saturday, March 26, ends 2400 GMT Sunday, March 28. The rules are the same as for last year. Briefly the rules are as follows: Contacts between stations on different continents count 3 points on 14, 21 and 28 Mhz, and 6 points on 2, 3.5 and 1.8 Mhz. On the same continent but not the same country, 1 point on 14, 21 and 28 Mhz, and 2 points on 2, 3.5 and 1.8 Mhz. Contacts are permitted between stations in the same country for the purpose of obtaining a prefix multiplier, but have no QSO point value.

The multiplier is determined by the number of different prefixes worked. Each prefix may be counted once only, NOT once per band.

Exchange RS report plus a serial number starting at 001. Single operator stations may use only 30 of the 48 hours available. The 18 hours of non-operating may be taken in up to 9 periods. To be eligible for awards, a minimum of 12 hours operating must be shown. There is no limit for multi-operator stations, but 24 hours are needed for award eligibility.

Send logs by May 10 to CQ WW WPX SSB Contest Committee, 14 Vandewater Ave., Port Washington, N.Y. 11050 U.S.A.

HM CONTEST AND ETC.
I am still recovering from going through all the logs for the last contest. My apologies for the

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. B. J. SORLEY VK6RO
Mr. A. F. ASHBY VKZTA
Mr. A. EDWARDS GEX/JVKAMM

DUDDLEY McDONALD VK4MY
Dudley McDonald VK4MY passed away 12-12-1977. He held the call VK3OM from the early thirties until the middle of 1964 when he moved to Palm Beach, Queensland.

Dudley was a keen CW operator who was trying to work 5 band DXCC, I think he was well on the way to obtaining this hard-to-get certificate.

I first met him in December 1945, when I joined the staff at 310/2AR Sydneyham, an easy-going type of chap whom I am sure will be sadly missed. To his wife Blanche, all his many friends extend their deepest sympathy.

de P. J. Anderson VK3PA

MR. FRANK ASHBY VKZTA
Albert Frank (Frank) Ashby VKZTA, who died suddenly at home on 12th December 1977, was first licensed in G-class as G3QXC in 1948. His interest in radio, however, dated back to 1912 when, as a boy at school, he was first allowed to turn a Wimshurst Machine.

On arrival in Australia in December 1950, Frank lost no time in applying for a VK call sign, and was licensed as VK3PAA with a GTH at Palm Beach in 1951. He later switched to the 7 letter call sign of VKZTA and his GTH was at Outlay for the past 14 years. Frank was a man of varied interests, including motor racing in pre-war England, sailing, photography and shooting. In spite of heart trouble and a cardiac pacemaker implant, he managed to remain active right up until his death at the age of 78.

He will be sadly missed by his wife and many friends.

VK3AJ

S.A. Journal, April 1978, buy or borrow for copying. VK3AFW, QTHR.

HILLCRISTS Receiver, Model 83-A, preferably in working order. Also anyone with knowledge of, or has of disposal a 8-40 Rk as manufactured by Murphy Radio, please contact H. Charles, at 49 Spencer Street, Burnie, Tas. 7320.

YAESU FT200 with power supply or FT101 or similar, price to be negotiated. Contact Chris VK6ZBT, QTHR.

Bug, borrow or deal but preferably loan of completion for 500W "Antiference" transistor tower, good vintage, approx. 1950. VK3AH, QTHR.

IC22 or IC22A or similar, must be good condition, enquiries Graeme Scott VK3ZR, QTHR. Ph. (03) 89 4545.

TV Antenna, price and particulars to L30432, QTHR. Ph. (02) 308 2539.

FT101 or similar Tacyr, good unit required up to \$450. Trevor Ptmn. Ph. (03) 550 4203. 71 Church St., Beaumaris, Vic.

Bug, VK3VT, Ph. (03) 89 5328.

Universal Transceiver, 80-10 MHz, 1 or Mk. II, in good working order, complete with service manual and box if possible. Details and price to VK2LX, QTHR Ph. (043) 82 2390.

H/Book and Maintenance Manuals for Collins TCR5 radio set. Will pay \$30. G. Edwards VK2ATW, QTHR. Ph. (068) 47 2051.

Signal Generator variable, 3 MHz to 30 MHz Marconi model TF 985B, or similar. Jim Bland VK1JB, Ph. (062) 81 2824 Bus., (062) 86 2803 A/R. **Setting up shack on limited budget** A-yas gear? Ptmn. need is transceiver HF 550, older type, e.g., Swan 550 FT101, etc., Fraker (VK2YAL full soon) VK2NDQ, QTHR. Ph. (02) 78 5500.

Reasons PS Car Radio (AM only), 12V neg. \$40.00, exc. cond., "Power" portable AM, FM, SW receiver, covers BC, Marine, VHF air and PS bands, FM, BC, \$40. Graeme Scott VK3ZR, QTHR. Ph. (03) 89 4545.

Drake R4B Rk, good condition, less than half new price \$300; YAESU FT200 transceiver with power supply and spare valves, handbook and original packing, \$350. VK3AS, QTHR. Ph. (086) 82 2809 bus.

RTTY equipment (Cred), 6S/5M auto-transmitter, 7P/4N perforator, both units in excellent condition. Supplied with 25 rolls of tape and complete documentation, \$100. VK3JE, QTHR.

FTDX108, good cond., full wlg. order, all cables and h'book, \$450. ONO. VK3YQ, QTHR. Ph. (03) 859 3004.

SBTV Slow Scan Monitor, similar to Robot 70A, \$220. Stan VK3BH, QTHR. Ph. (03) 870 5132 or (060) 71 7244.

Collins S-Line Equipment 32S-1, 516F-2, 312B-4, 30L-1, fitted with 4 x 872B tubes. Includes spare tubes for exciter with 4 x 6-40, 584C5 and 584G4 rectifiers. Well maintained by one owner since new, cables and instruction manuals included. Package deal \$1,000, cash and carry. VK6RU, QTHR. Ph. (08) 385 9654.

YAESU FT200 Transceiver with FP200 power supply, mint condition, plus 14AVQ vertical antenna, \$450. VK3RL, QTHR. Ph. (02) 908 2962 A.H.

YAESU FPGT Rk, \$190; Tandy 3X180 Rk, \$120; Katsumi dual paddle keyer, \$150; AWA AC/DC PSU 15 amp, \$40; RTTY demodulator/encoder, tube type, with CRO tuning, \$40; model 15 RTTY printer, recently overhauled, \$50. VK3NCY, Box 322, Mentone 3184. Ph. (03) 90 2620.

Antenna Rotator, HAM-II, complete with 60 ft. of multi-conductor cable to suit, unused, new cond., \$200. VK3DKI, QTHR. Ph. (08) 284 1902.

Co-ax Cable NGR, 1/2 in. dia., 3 lengths, 1 x 30 ft., 1 x 51 ft., 1 x 53 ft. Sweep for 60A tubes or what have you. VK3YVR, QTHR. Ph. (03) 78 7175.

Dream QTH, Vacant building block approx. 50 ft. x 160 ft., loc. Gladfield Blue Mts., N.S.W. Level block with massive 60 ft. self-supporting telegraph pole on it with additional 20 ft. rotating steel section to carry antennas. Price \$9,500. Large monoband Yagis for 10, 15 and 20 m also available. VK2KX, Ph. (02) 524 9631 or (03) 28 2715.

Tower, 60 ft. high, triangular shape, self-supporting. See erected, \$100. VK3ATO, QTHR. Ph. (05) 707 2110 A.H.

Antenna, TH3 Junior Yag, \$180; 432 MHz 44 ft. Yag, \$35; 10-15 duod band Yag, \$100; transceiver, 144-432 MHz, \$190; converter, 144/28 MHz IF, \$35; TS 600 6 m transceiver, as new, \$655; Collins "S" line, absolute mint cond., 7503G, 3535A, 30L1, 515/52 PS, Ph. (03) 24 1232 or (03) 509 8637.

YAESU FT222 2 m Xcvr, channels 2, 8, 40, \$139. VK3ZKE, Ph. (03) 546 4924.

Microwave Modules, 28/144 MHz transceiver, unused, cost \$185, sell \$125, or exchange for 2 m hand held in good order. VK2BYR, QTHR. Ph. (02) 620 1444.

Transformer A and B, 200V, 220V, 230V, 240V primary, 565V, 500V, 425V a/c at 250 mA, 2-6.3V 3A, 1-5V 3A, 2-2.5V 3A. Two silicon 1000V half wave rectifiers, 15V. VK3VLI, Ph. (03) 89 3339.

FTDX400 90-10 mhz Transceiver with matching SP460 Rk unit, mint, etc., \$445; QM70 high power 25-144 MHz transceiver, \$145; Heathkit 58410 monitorscope, \$150; Datong RF speech clipper, \$65. All above units in as new condition, in original cartons with hand books. New 813 tubes, \$20 pair; new Asahi 20m 3 el. beam, \$155; 20m mini-beam, \$50; 14 AN-10 vertical antenna, 40-10m; \$55; Drake 20-10m receiver with matching spkr./Qthr unit, \$175. VK3ARZ, QTHR. Ph. (03) 232 9482.

WANTED

TH3 Junior Beam, Rotator, Mast and Dummy Load. VK3BAV, QTHR. Ph. (03) 588 8665.

FT200 or FT700 or similar, Jim Upton. Ph. (062) 48 9602.

Best 30-40 feet, self supporting preferred, also Rotator, Mast etc. or similar. Was VK6RAN, QTHR. Ph. (06) 445 3005.

lateeness of the results — it occurred due to many things, not the least of which was a much more thorough check on duplicate contacts and scoring than is usual. I wonder how many people have noticed that the results published do not necessarily agree with the logs submitted. There are many reasons yet to be found, and some of them may appear in a later issue. Many wrote that they enjoyed it, and the record number of entries supports this comment.

Next month should have the Ross Hull results out, and also some certificates out to those who are waiting patiently for them.

Till next month, 73.

HAMADS

- Eight lines free to all WIA members. \$9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Commercial advertising is excluded. Repeats may be charged at full rate.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTH means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

Ken KF202, Transceiver, charger and manual, \$140; Snooker Table, complete (3 cues), \$140; both new condition, VK3BAV, QTHR. Ph. (03) 585 8665.

Hy-Gain THODX Beam, \$215; 2m 11 el Yagi, \$25; Midy 1V-N 40-10m trap dipole, \$45. VK3OH, QTHR. Ph. (03) 560 510.

Transmitter S8S H/B 30-40-20m enclosed 6 ft. steel cabinet, final PR 4X108B 200W O/P, 90V. VK3BDO, QTHR. Ph. (03) 338 2105.

FL2100B, new, unused in box, warranty current, \$250; Marconi UHF Wavemeter TF643B, 20-300 MHz, 4 plug in ranges, sensitive and accurate, \$25; Partly complete 2m linear 4/125A tuned lines, 3 ft. table rack, 2000V DC supply, regulated sense supply, 2 hrs would complete, \$100; AWA AS10 2-15 MHz QRP earpiece unit with hand generator and all connecting cables, spare Tx, \$50; Admiralty Morse Kay No. 7681, \$5 new; 52 MHz FM(7) C42 37-50 MHz with all cables and power units, \$50; 3 Sclar 5-8 w/hrs and bases, new, in plastic, \$25 lot; Fuji 23 C, AM CG, self noise, \$25. VK3OT, QTHR. Ph. (050) 72 3186 day.

YAESU FT221 all mode transceiver, will exchange for small mobile HF rig, YAESU FT75B plus DC, PSU, Swan, etc. or sell. VK4PM, QTHR. Ph. (074) 82 1021.

Hustler 4 RTV trap vertical antenna, had very little use, \$115 ONO, Inc. 80m resonator. Ph. (053) 3 1558.

FT75B with mobile power supply, 2 months old, \$415 ONO. VK2ZXF/NGO, QTHR. Ph. (048) 51 4624 A.

Portable 8-band, short wave Rk (Rampy), 50 W 2 MHz to 28 MHz, 4 bands, MW 510 to 1600 kHz, FM 87 to 108 MHz, only 6 months old, mint brand new, has telescopic aerial, optional AC or DC and many other features. Sold with AC power cord. Price \$45. John Derarson, 27 Kent Ave., Brahmah Lodge 5109, S.A.

Lafayette HA-500A Rk, excellent condition, \$150 ONO, Trapdoor GDO with all coils, \$45, RAK 2m 5/8 ant. with magnetic base, \$15, unused. VK3GCN, Ph. (03) 347 9415.

Oscilloscope Roband, five inch crt. DC to 30 MHz, in working order, 22 cm screen, 4.5 cm wide, 58 cm depth, 14 kg weight, \$200. VK2ZOF, Ph. (02) 344 5571 after 5 p.m. weekdays.

House Block, 28.8 pers., situated on top of rise at Calliope, approx. 10 miles SE Gladstone, Old. Water and power past block. Calliope has an easy lifestyle which would suit anyone trying to get away from the city. Situated within easy access to ma or highways, ideal site for a Dc location. The nearby area is booming industrially and this land would be a good investment. Good fishing and boating areas close at hand. \$5,700.00 ONO. Enquiries VK4AN, Drummer St., Tooloos Estate, Gladstone, Old. 4630.

Sideband Electronics Sales

Distributors of COMMUNICATIONS TRANSCEIVERS

HF TRANSCEIVERS

ASTRO - 200 digital solid state 200 W.P.E.P.	\$1,000
TRIO KENWOOD new model TS-520S	\$ 685
TRIO KENWOOD model TS-820S AC only 160 to 10 M with digital readout.	\$1,050
TRIO KENWOOD MODEL TS-820 AC only 160 to 10 M.	\$ 900
TRIO KENWOOD model TS-600-A FM - AM	\$ 680
TRIO KENWOOD model TR-7400 2 meter FM transceiver 10 to 25 watts output Frequency range 144.00 to 147.995 MHz	\$ 400

ICOM

VHF TRANSCEIVERS SSB

ICOM model IC-502 6 M SSB portable transceivers 52-53 MHz	\$ 215
ICOM model IC-245	\$ 450
ICOM 701 new model	\$1,160
ICOM model IC-211	\$ 785

YAESU MUSEN FT 901 new model	\$1,575
YAESU MUSEN FT 7 new model	\$ 570
YAESU MUSEN model FT-101-E AC-DC transceivers 10 to 160 M with speech processor	\$ 849
YAESU MUSEN model FL-2100-B Lineal Amp.	\$ 569
YAESU MUSEN FRG-7 Wedley Loop Receiver All solid state, 0.5-29.9 MHz in thirty 1MHz bands. Electronic band selection	\$ 338
YAESU MUSEN FL110 Solid State Linear Amplifier. Companion unit to FT-301S. 10-15W drive, 200W PEP Input, 160-10mX.	\$ 249
YAESU MUSEN YC-500E 500MHz Freq. Counter. Accurate to .02ppm.	\$ 574
YAESU MUSEN YC-500S 500MHz Freq. Counter. Accurate to 1ppm.	\$ 446
YAESU MUSEN YC500J 500MHz Freq. Counter. Accurate to 10ppm.	\$ 319
YAESU MUSEN YO100 Monitorscope. Matches the FT-101E, but can be used with other Yaesu equipment. (IF kits 455 kHz and 9MHz optional extra). (IF Kits \$12.00 each)	\$ 285
YAESU MUSEN FTV-650B Six Metre Transverter. Converts 28 MHz. SSB to VHF, and includes receiving converter, 50W PEP. Primarily designed for coupling with Yaesu transmitters.	\$ 249
YAESU MUSEN FTV-250 Two Metre Transverter. Similar FTV-650B. 10W-15W output, but all solid state and built-in AC PS.	\$ 249
YAESU MUSEN FT227 New model	\$ 370
YAESU MUSEN QTR-24 24 Hour World Clock. At a glance the time anywhere in the world can be read.	\$ 33

AUSTRALIA'S SOLE DIST. OF KLM PRODUCTS

KLM SOLID STATE POWER AMPLIFIERS			
(MHz)	144-148 PA10	80BL	80 OUTPUT (watts)
"	PA10 - 140BL	140	"
"	PA 10 - 160BL	160	"
"	PA 2 - 70BL	70	"
400-470	PA10 - 70CL	70	"
"	PA 2 - 12B	12 Watts	"
"	PA 2 - 25BL	25 Watts	P.O.A.

New Shipment expected soon.

For personal attention: 24 KURRI STREET, LOFTUS
P.O. BOX 184, SUTHERLAND, 2232 TELEPHONE: 521-7573

SIDE BAND ELECTRONICS SALES OPEN ON SATURDAYS TILL 12 NOON PETER SCHULZ, VK2ZXL

MARK MOBILE ANTENNAS

HW - 40" 6 feet long for 40M	\$ 25
Swivel mounts and chrome-plated springs for all	\$ 13

ANTENNA ROTATORS

KEN model KR-400 for all medium size hf beams with internal disc brake	\$ 138
KEN KR500	\$ 150

All models rotators come complete with 230-volt AC indicator-control units.
6-conductor cable for
KR-400-500 65 cents per metre

Emotator.

1213 Mast clamp for 502CXX	\$29.50
300 Mast Stay bearing for above	\$32.00
301 Tower top bearing	\$32.00

HF ANTENNAS

HADAKA VS 40-80 Vertical	\$ 115
HADAKA VS 33 Tribender	\$ 265
DX 33 Western	\$ 240
HADAKA VS-22-3 Element 15-10m in balun	\$ 173
HADAKA VS-RG Radial kit for VS41	\$33.50

COAX CABLE CONNECTORS

PL-259	\$ 1.20
SO-239 Chassi Mount	\$ 1.20
Male to male joiner	\$ 1.20
Female to female joiner	\$ 1.20
Angle connector	\$ 2.00
T-connector	\$ 2.50

SWR METER

Twin meter model: Y.M. - I.E. 3.5 to 145 MHz prof quality	\$ 28
DRAKE TV - 3300 TV 1 lowpass filter	\$ 34

CRYSTAL FILTER, 9MHz, similar to

FT-200 ones. With carrier crystals.	\$ 35
APOLLO 3 position co-ax switches	\$ 15

MORSE KEYS

EK-127 Electronic Keyer	\$ 99
EK-1505 Single Paddle Electronic Keyer	\$ 136
EK-150D Double Paddle Electronic Keyer	\$ 136
MK-1024 Programmable Keyer, 1024 bit memory	\$ 233

HI-MOUND

HK-710 De luxe heavy duty morse key. Heavy base. A really beautifully constructed and finished unit. Fitted with a dust cover, standard knob and knob plate. Ball bearing shaft.	\$ 45
HK-808 Similar HK-710 but with full miniature ball race bearings and more precise adjustments	\$ 75
HK-707 Similar to above but with dust cover and standard knob. On standard base	\$ 19
MK-701 Side Swiper key to actuate an Electronic keyer	\$ 45
BK-100 (BUG) Semi-automatic bug key, fully adjustable	\$ 49

VALVES 572 B \$55, 6KD6 \$12.50, 6JS6 \$10.50
6JM6 \$9.50, S2001 (6146B) \$13.50, 12GB7 \$8.50
7360 \$14.50, 6GK6 \$6.

Go RTTY with DOVETRON'S MPC - series multi path Diversity
Terminal Units. The Rolls Royce of all terminal units. We are
appointed distributors.

HAL ST9000 - Economy terminal unit. 170-450-850 shifts.
We have locally built units for lower prices, SOON AVAILABLE.
SSTV with Robot 400 - Video Display Units
KEY BOARDS - Write for PRICE DETAILS.

All prices quoted are net SYDNEY, N.S.W., on cash with order basis, sales tax included in all cases, but subject to changes
without prior notice. ALL-RISK INSURANCE from now on free with all orders over \$100; small orders add 50c
for insurance. Allow for freight, postage or carriage; excess remitted will be refunded.